1330 Carling Avenue & 815 Archibald Street

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Strategy Report (revised)

Prepared for:

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November 2020

PN: 2019-62

Table of Contents

List of Figures

Table of Tables

List of Appendices

1 Screening

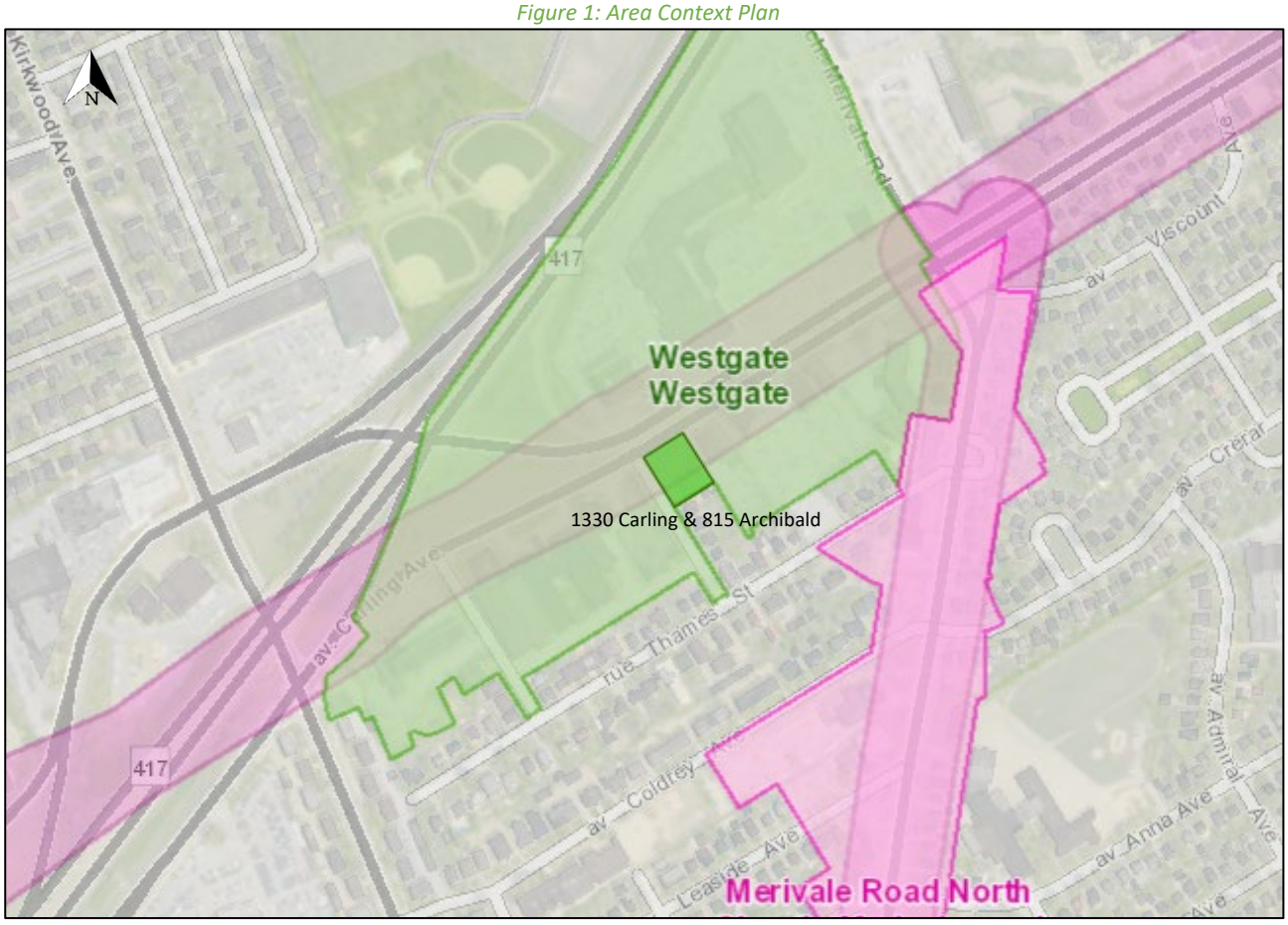
This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for TIA Study PM. As shown in the Screening Form, a TIA is required including the Design Review component and the Network Impact Component.

2 Existing and Planned Conditions

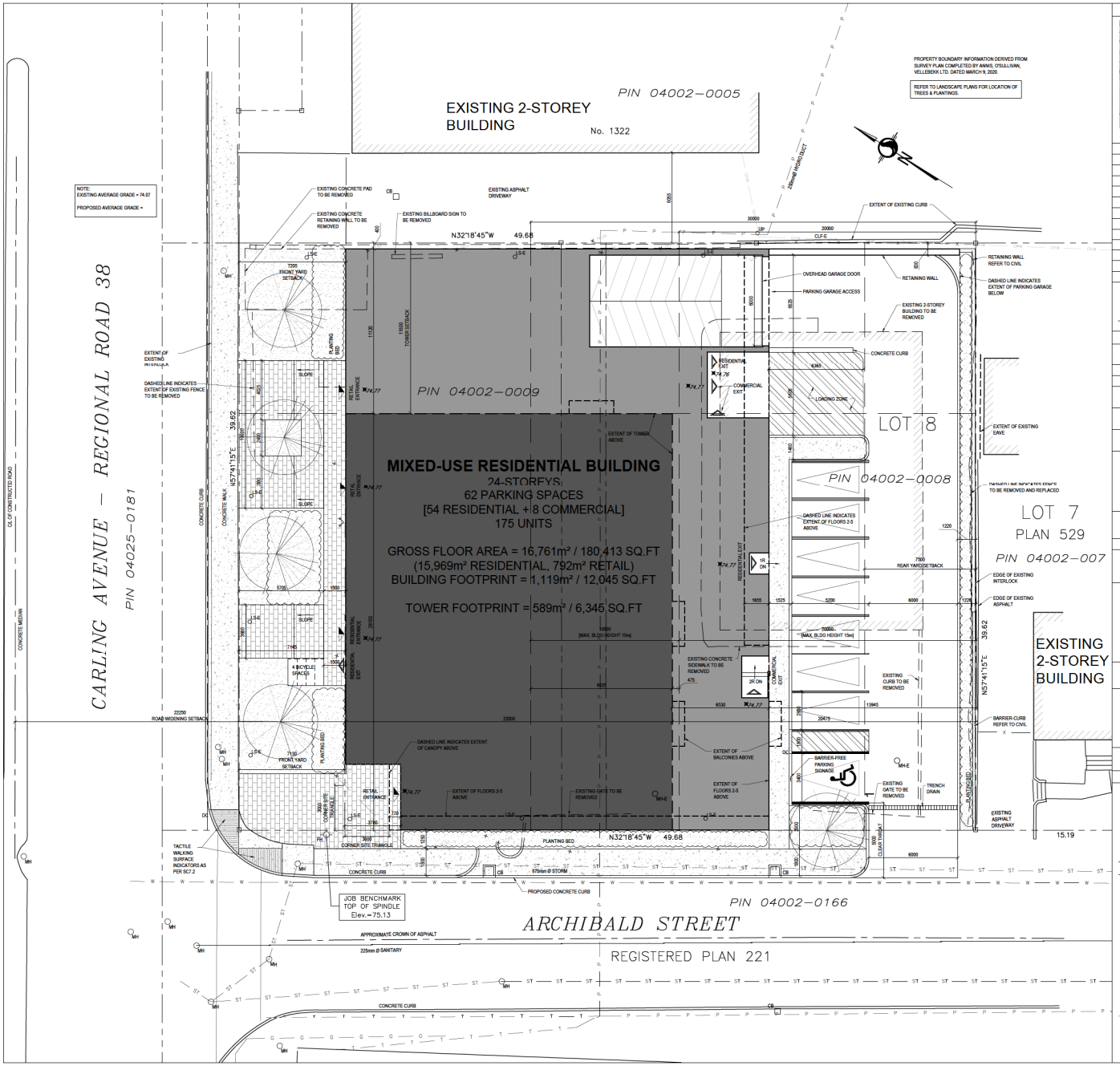
2.1 Proposed Development

The proposed development is located at 1330 Carling Avenue and 815 Archibald Street and is currently zoned as Arterial Mainstreet (AM). The existing site is a used car lot and sales building. The proposed redevelopment would include a total of 175 apartment units and approximately 792 m^2 of ground floor retail space to be built in a single phase. Underground parking will be provided for 54 residential spaces and eight retail spaces will be provided on the surface, with the access located along Archibald Street. The site is located within the area considered by the Westgate Secondary Plan and within the Carling Arterial Mainstreet Design Priority Area. The anticipated full build-out and occupancy horizon is 2023. Figure 1 illustrates the Study Area Context and Figure 2 illustrates the proposed concept plan.

Figure 1: Area Context Plan



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: December 31, 2019



KEY PLAN

PROPERTY DESCRIPTION

24-STOREY RESIDENTIAL BUILDING	
CITY OF OTTAWA PIN NUMBER	04002 0008
MUNICIPAL ADDRESS	1330 Carling Avenue
PART 1, PART OF BLOCK 8 REGISTERED PLAN 221 AND LOT 8 AND PART OF LOT 7 REGISTERED PLAN 529	

SITE INFORMATION

LOT AREA:	1,969m²
LOT FRONTAGE:	39.62m
LOT DEPTH:	49.68m

BUILDING INFORMATION

BUILDING AREA:	1,119m²
BUILDING FLOOR AREA:	16,761m²
PROPOSED USE:	MIXED-USE RESIDENTIAL, HIGH-RISE

UNIT BREAKDOWN:

FLOORS 2:	9 UNITS	7- 1BD, 2- 2BD
FLOORS 3-5:	12 UNITS	1- STUDIO, 9- 1 BD, 2- 2BD
FLOOR 6:	4 UNITS	1- STUDIO, 1- 1BD, 2- 2BD
TYPICAL FLOORS 7-24:	7 UNITS	2- STUDIO, 1- 1BD, 4- 2BD
TOTAL:	175 UNITS	40- STUDIO, 53- 1 BD, 82- 2 BD

ZONING TABLE

CITY OF OTTAWA ZONING BY-LAW No. 2008-250	AM10 REQUIRED	PROPOSED
LOT AREA	No minimum	
LOT WIDTH	No minimum	
FRONT YARD SETBACK	0m	0m (as per road widening)
MINIMUM INTERIOR SIDE YARD SETBACK	0m	0.4m
MINIMUM REAR YARD SETBACK	3m for the first 20m from Archibald; 7.5m otherwise	13.9m
MAXIMUM BUILDING HEIGHT	Within 20m of R4 zone: 15m 20-30m from R4 zone: 20m 30+m from R4 zone: 30m (up to 9 storeys)	Commercial Ground Floor 1(5.8m) Residential 24(69m) Total 25(74.8m) Within 20m of R4 zone: 16.3m 20-30m from R4 zone: 74.8m
GROUND FLOOR HEIGHT/GLAZING	4.5m & min. 50% glazing on Carling and Archibald	4.5m ground floor height 74% glazing on Carling Avenue 52% glazing on Archibald Street
MAXIMUM FLOOR SPACE INDEX	N/A	
LANDSCAPED AREA	15% = 295m² 3m buffer between parking lots and lot lines (10-99 parking spaces)	17.8% = 350.8m²
VEHICLE PARKING REQUIREMENTS (AREA Y, SCHEDULE 1A)	Residential: 0.5 spaces/unit after first 12 units [163 x 0.5 = 82] Residential visitor: 0.1/unit after first 12 units [163 x 0.1 = 16] At-grade restaurant use (GFA=350m²): 0 spaces At-grade non-residential use (GFA=500m²): 0 spaces Other non-residential: 1-5 spaces/100m² GFA	63 SPACES TOTAL VISITOR = 16 RESIDENTIAL = 39 COMMERCIAL = 8 PARKING AREA: 498m² LANDSCAPE AREA: 92m²
LOADING	1 space for 2,000-4,999m² non-residential GFA	1 SPACE
AMENITY AREA REQUIREMENTS	6m² per unit 50% communal and at least one area of min. 54m² Total = 1,110m²	COMMUNAL AMENITY: 525m² BALCONIES: 878m² TOTAL AMENITY: 1,403m²
BICYCLE PARKING SPACES	0.5 per dwelling unit =93 1/250m² non-residential GFA	110 SPACES

LEGEND

- ASPHALT PAVING
- CONCRETE
- EXISTING BUILDING ELEMENT TO BE REMOVED
- EXISTING FENCE
- NEW BOARD FENCE REFER TO LANDSCAPE
- LOT LINE
- SETBACK LINE
- DESIGNATED BUILDING ENTRANCE / EXIT
- FIRE HYDRANT. REFER TO CIVIL
- CB CATCH BASIN
- MH MANHOLE
- FLOOR DRAIN
- UTILITY POLE
- OHW OVERHEAD UTILITY WIRES
- LS LIGHT STANDARD
- DC DEPRESSED CURB
- SOFT LANDSCAPING REFER TO LANDSCAPE
- UNIT PAVERS REFER TO LANDSCAPE
- EXISTING TREE TO REMAIN (REFER TO LANDSCAPE DRAWINGS)
- NEW TREE (REFER TO LANDSCAPE DRAWINGS)
- NEW SHRUBS (REFER TO LANDSCAPE DRAWINGS)
- NEW EVERGREEN SHRUB (REFER TO LANDSCAPE DRAWINGS)
- FIRE DEPARTMENT CONNECTION
- 77.76 EXISTING GROUND ELEVATION [TO DETERMINE EXISTING AVERAGE GRADE]
- 58.84 NEW GROUND ELEVATION REFER TO CIVIL

NOTE: "X"-E INDICATES EXISTING TO REMAIN

No.	Date	Emis pour / Objet
1	2020-01-24	PRECONSULTATION
2	2020-02-26	COORDINATION
3	2020-03-26	COORDINATION
4	2020-04-17	SITE PLAN CONTROL
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Ingénieur / Engineer (Mécanique & Électricité / Mechanical & Electrical)

Ingénieur / Engineer (Structure / Structure)

Architecte/ Architect (paysagiste / Landscape)

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Ingénieur / Engineer (Civil / Civil)

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Client / Client

Architecte / Architect

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Note:

L'entrepreneur doit vérifier toutes les dimensions et informations sur le site et aviser immédiatement l'architecte de toutes erreurs ou omissions.

Contractor shall verify all information and dimensions on site and immediately report any errors or omissions to the architect.

Projet / Project

MIXED-USE RESIDENTIAL BUILDING

1330 Carling Avenue
Ottawa, ON

Titre / Title

SITE PLAN

Dessiné par / Drawn by	No. projet / Project number
MD	1956
Vérifié par / Verified by	No. dessin / Drawing number
RC	
Échelle / Scale	Révision / Revision
AS SHOWN	0
Date de création du dessin / Drawing creation date	
2020-01-06	A-105

D07-12-20-0053

#18182

2.2 Existing Conditions

2.2.1 Area Road Network

Highway 417: Highway 417 is a Ministry of Transportation of Ontario freeway with a six-lane divided urban cross-section throughout the study area. The current widening will expand the freeway to eight lanes. It has a posted speed limit of 100 km/h and it is a truck route.

Carling Avenue: Carling Avenue is a City of Ottawa arterial road with a six-lane divided urban cross-section, with bike lanes and sidewalks on both sides of the road. The posted speed limit is 60 km/h. The Ottawa Official Plan reserves a 44.5 metre right of way within the study area. Carling Avenue is a truck route.

Kirkwood Avenue: Kirkwood Avenue is a City of Ottawa arterial road with a four-lane urban cross-section, sidewalks on both sides of the road within the study area and on-street parking permitted on both sides of the road outside of 7:00am-9:00am and 3:30pm-5:30pm on weekdays south of Carling Avenue. The posted speed limit is 50 km/h and the City reserves a right of way of 26 metres in the study area. Kirkwood Avenue is a truck route.

Merivale Road: Merivale Road is a City of Ottawa arterial road with a two-lane urban cross-section, sidewalks on both sides of the road, and cycle lanes on both sides of the road north of Carling Avenue. South of Carling Avenue, Merivale Road has a four-lane urban cross-section with sidewalks on both sides of the road and on-street parking permitted on the east side of the road. The posted speed limit is 50 km/h throughout the study area, and the City-protected right of way is 30 metres north of Carling Avenue and 34 metres south of Carling Avenue. Merivale Road is a truck route south of the first mall access.

Archibald Street: Archibald Street is a City of Ottawa local road with two-lane urban cross-section and on-street parking permitted on the west side of the road. Southbound drivers are restricted from exiting Archibald Street. The unposted speed limit is assumed to be 50 km/h and the existing right of way is 15.0 metres.

Coldrey Avenue: Coldrey Avenue is a City of Ottawa local road with a two-lane urban cross-section, a sidewalk on the south side of the road, and on-street parking permitted for 320 metres east of Merivale Road on the north side of the road. West of this point, within the study area, parking is permitted between 4:30pm and 7:30am. The posted speed limit is 40 km/h and the existing right of way varies between 15.0 metres and 20.0 metres within the study area.

Crerar Avenue: Crerar Avenue is a City of Ottawa local road with a two-lane urban cross-section, sidewalks on both sides of the road, and on-street parking permitted on both sides of the road. The unposted speed limit is assumed to be 40 km/h and the existing right of way is 20.0 metres.

2.2.2 Existing Intersections

The existing area intersections adjacent to the proposed site and additional signalized intersections within 400 metres of the site have been summarized below:

Carling Avenue (westbound) & Kirkwood Avenue	The intersection of Kirkwood Avenue and Carling Avenue (westbound) is a signalized intersection. The northbound approach consists of a left-turn lane and a through lane and the southbound lane consists of two through lanes and an auxiliary right-turn lane. The westbound approach consists of an auxiliary left-turn lane, a shared left-turn/through lane, a through lane and a shared through/right-turn lane. An LED southbound right turn restriction is present at the intersection for the adjacent fire station, which has pre-emptive measures to permit access to and from

	the station during an emergency call. No other turn restrictions are noted.
Carling Avenue (eastbound) & Kirkwood Avenue	The intersection of Kirkwood Avenue and Carling Avenue (eastbound) is a signalized intersection. The northbound approach consists of a two through lanes and an auxiliary right-turn lane, and the southbound lane consists of a shared left-turn/through lane and a through lane. The eastbound approach consists of an auxiliary left-turn lane, a shared left-turn/through lane, two through lanes and a channelized, auxiliary right-turn lane. Northbound right turns on red are restricted.
Carling Avenue & Archibald Street	The intersection of Carling Avenue and Archibald Street is a stop-controlled intersection on the minor approach. The northbound approach consists of a right-turn lane. The eastbound approach consists of two through lanes and a shared through/right-turn lane, and the westbound approach consists of three through lanes. No turn restrictions are noted, however the median on Carling Avenue restricts northbound left turns and westbound left turns.
Carling Avenue & Westgate Mall Access W	The intersection of Carling Avenue and the western Westgate Mall access is a signalized T-intersection. The southbound approach consists of a shared left-turn/right-turn lane. The eastbound approach consists of three through lanes, and the westbound approach consists of two through lanes and a shared through/right-turn lane. Left turns and U-turns are not permitted from the eastbound and westbound approaches.
Carling Avenue & Westgate Mall Access E/Best Western	The intersection of Carling Avenue and the eastern Westgate Mall access is a signalized intersection. The northbound approach consists of an all movements lane, and the southbound approach consists of a shared left-turn/through lane and a right-turn lane. The eastbound approach consists of an auxiliary left-turn, two through lanes, and a shared though/right-turn lane and the westbound approach consists of an auxiliary left-turn lane, two through lanes and a shared through/right-turn lane. No turn restrictions are noted.
Carling Avenue & Merivale Road	The intersection of Carling Avenue & Merivale Road is a signalized intersection. The northbound approach consists of an auxiliary left-turn lane, a through lane, and a channelized right-turn lane providing local access to residential units and Viscount Avenue with a stop-control at Carling Avenue. The southbound approach consists of an auxiliary left-turn lane, a through lane, and an auxiliary right-turn lane. The eastbound approach consists of two through lanes and a shared through/right-turn lane and the westbound approach consists of an auxiliary left-turn lane, two through lanes and a shared through/right-turn lane. Eastbound left turns from Carling Avenue onto Merivale Road are restricted.
Merivale Road & Westgate Mall Access N	The intersection of the northern Westgate Mall access and Merivale Road is a signalized T-intersection. The northbound approach consists of an auxiliary left-turn lane and a through lane, the southbound approach consists of a through lane and an auxiliary right-turn lane, and the

eastbound approach consists of a left-turn lane and a right-turn lane. No turn restrictions are noted.

Merivale Road & Coldrey Avenue/Crerar Avenue

The intersection of Coldrey Street, Crerar Street, and Merivale Road is a signalized intersection. The northbound and southbound approaches each consist of a shared left-turn/though lane and a shared through lane/right-turn lane. The eastbound and westbound approaches each consist of an all-movements lane. No turn restrictions are noted.

2.2.3 Existing Driveways

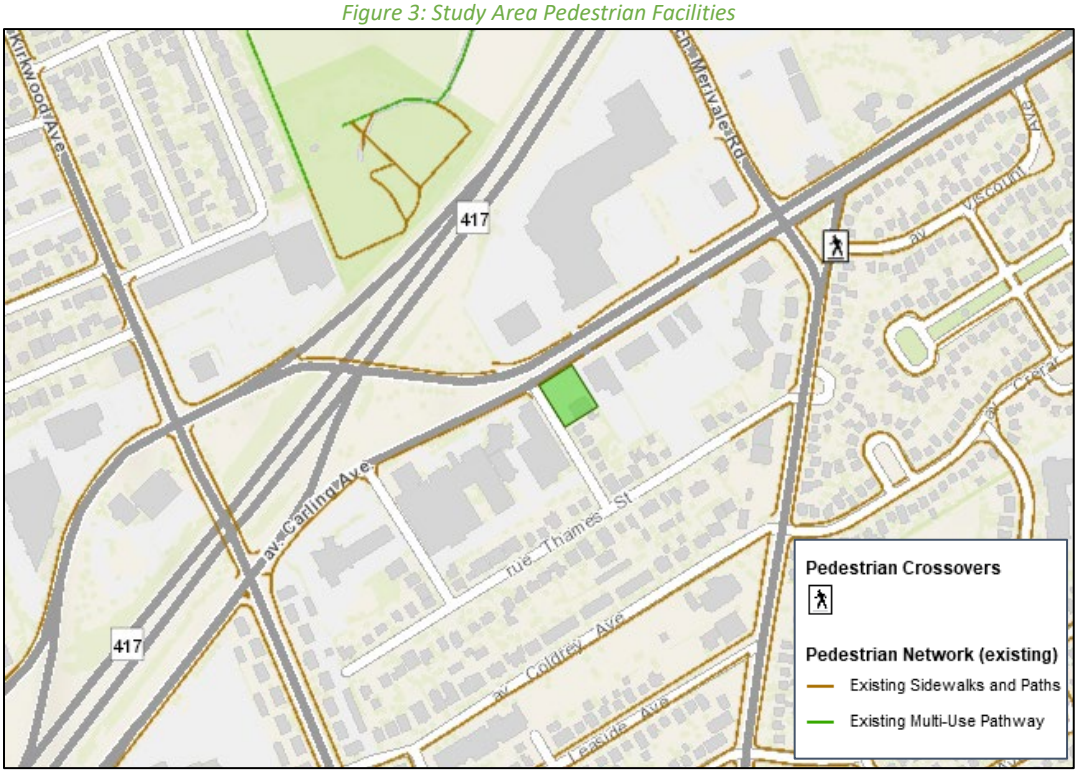
Along Archibald Street, private approaches are located within 200 metres of the proposed driveway. Along Carling Avenue, driveways are located along the south side of the roadway to the east of the site.

2.2.4 Cycling and Pedestrian Facilities

Figure 3 illustrates the pedestrian facilities in the study area and Figure 4 illustrates the cycling facilities.

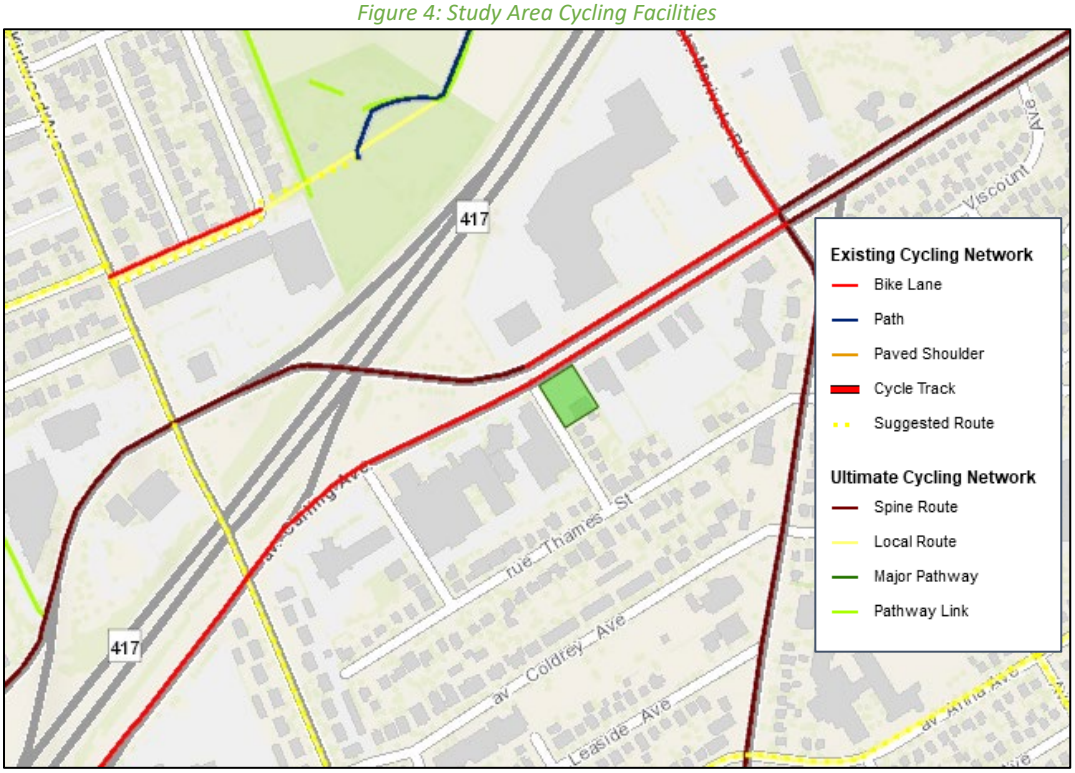
Sidewalks are provided along both sides of arterial roads within the study area and generally along one side of local roads, except in the vicinity of the proposed site. Bike lanes are located along Carling Avenue and on Merivale Road, north of Carling Avenue, and Kirkwood is a designated local route. Carling Avenue and Merivale Road are both designated as spine routes.

Figure 3: Study Area Pedestrian Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: December 31, 2019

Figure 4: Study Area Cycling Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: December 31, 2019

2.2.5 Existing Transit

Within the study area, the route #55 travels along highway 417 and Carling Avenue, #85 travels along Carling Avenue, #81 travels along Kirkwood avenue, and route #80 travels along Merivale Road. Stops are located on Carling Avenue (eastbound) at Archibald Street, Carling Avenue (westbound) between the two mall accesses and at the intersection of Carling Avenue and Merivale Road. The frequency of these routes within proximity of the proposed site currently are:

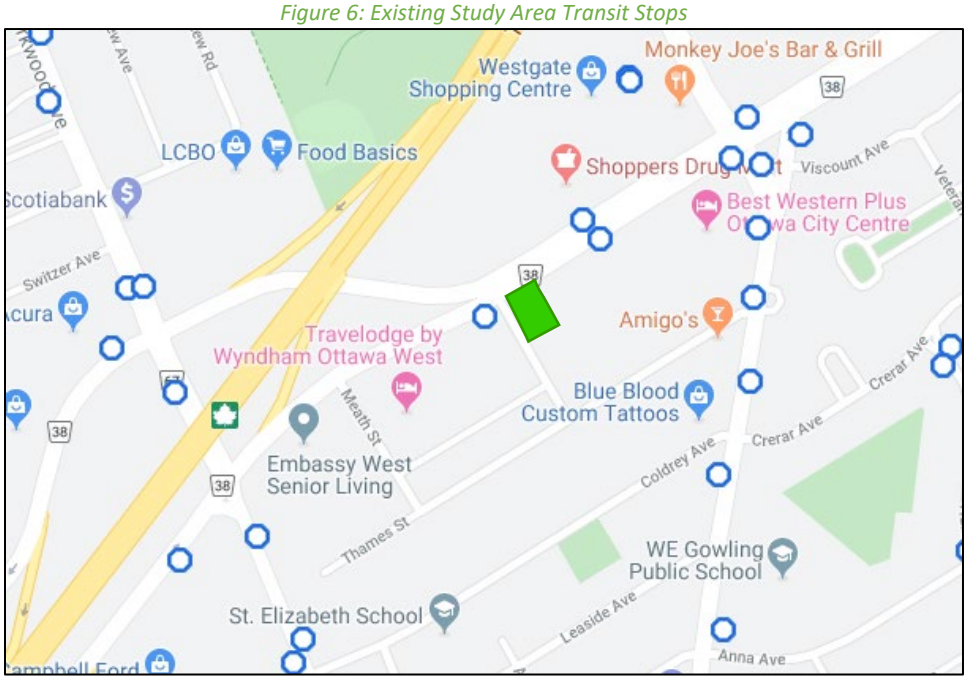
- Route #55 – 30-minute service all day, 15-20-minute service asymmetrically during peak periods
- Route #80 – 15-minute service all day, 30-minute service before 6am and after 8pm
- Route #81 – 30-minute service all day, 15-minute service asymmetrically during peak periods
- Route #85 – 15-minute service all day, 20-minute service after 7:30pm

Figure 5 illustrates the transit system map in the study area and Figure 6 illustrates nearby transit stops.

Figure 5: Existing Study Area Transit Service

Source: http://www.octranspo.com/ Accessed: December 31, 2019

Figure 6: Existing Study Area Transit Stops



Source: http://www.octranspo.com/ Accessed: December 31, 2019

2.2.6 Existing Area Traffic Management Measures

While Archibald street currently restricts southbound drivers from continuing through to the southern network through signage, it is currently planned that it be separated from southern network through the use of physical barriers.

2.2.7 Existing Peak Hour Travel Demand

Existing turning movement counts were acquired from the City of Ottawa and The Traffic Specialist for the existing Study Area intersections. Table 1 summarizes the intersection count dates and sources.

Table 1: Intersection Count Date

Intersection	Count Date	Source
Kirkwood Ave & Carling Ave (westbound)	Tuesday, April 10, 2018	City of Ottawa
Kirkwood Ave & Carling Ave (eastbound)	Tuesday, April 10, 2018	City of Ottawa
Carling Ave & Archibald St	Tuesday, March 10, 2020	The Traffic Specialist
Carling Ave & Westgate SC W	Wednesday, January 31, 2018	City of Ottawa
Carling Ave & Westgate SC E	Tuesday, March 10, 2020	The Traffic Specialist
Carling Ave & Merivale Rd	Tuesday, April 5, 2018	City of Ottawa
Merivale Rd & Westgate SC N	Wednesday, March 21, 2018	City of Ottawa
Merivale Rd & Coldrey Ave/Crerar Ave	Wednesday, January 31, 2018	City of Ottawa

Figure 7 illustrates the existing traffic counts and Table 2 summarizes the existing intersection operations. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. U-turn movements have been included in left-turning volumes within the volume figures and have been modelled as separate movements within Synchro™. Detailed turning movement count data is included in Appendix B and the Synchro worksheets are provided in Appendix C.

Figure 7: Existing Traffic Counts

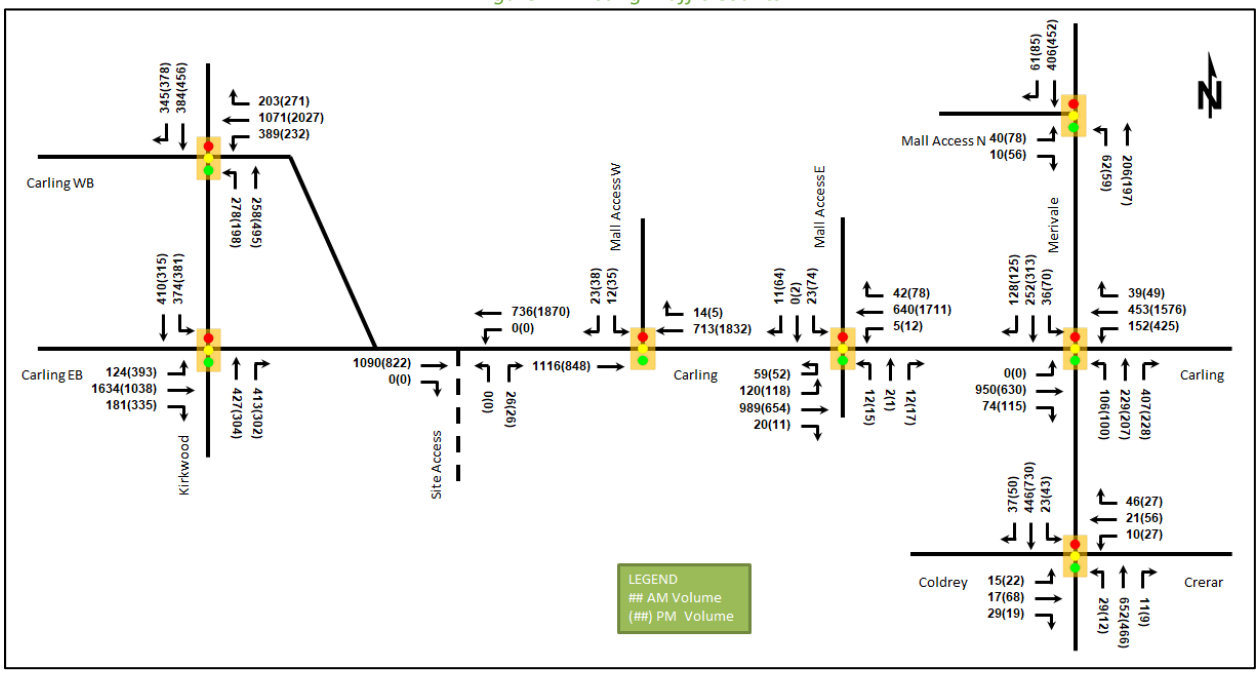


Table 2: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Carling Avenue (westbound) & Kirkwood Avenue *Signalized*	WBL	B	0.61	24.8	125.3	A	0.32	17.5	43.4
	WBL/T/R	C	0.74	23.9	132.7	**F**	**1.16**	**100.1**	**#301.3**
	NBL	C	0.76	36.3	m86.3	C	0.73	43.8	**#66.6**
	NBT	A	0.37	23.1	m80.9	D	0.81	55.5	**#174.2**
	SBT	A	0.52	41.1	60.3	B	0.68	47.7	76.5
	SBR	E	0.93	63.5	**#123.5**	**F**	**1.09**	**107.7**	**#157.5**
	Overall	**C**	**0.80**	**32.0**	-	**F**	**1.12**	**82.5**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road & Westgate SC ***Signalized***	EBL	A	0.14	19.8	9.5	A	0.29	24.9	17.6
	EBR	A	0.04	10.0	2.9	A	0.20	8.0	7.3
	NBL	A	0.11	1.8	3.9	A	0.12	4.1	m13.4
	NBT	A	0.17	1.7	9.9	A	0.18	4.5	m56.4
	SBT	A	0.34	6.5	51.4	A	0.41	7.3	57.8
	SBR	A	0.06	2.3	4.7	A	0.09	1.9	5.2
	Overall	**A**	**0.35**	**5.2**	-	**A**	**0.41**	**7.6**	-
Carling Avenue (eastbound) & Kirkwood Avenue ***Signalized***	EBL	A	0.20	22.4	35.9	A	0.59	29.3	113.9
	EBL/T	E	0.94	43.7	#194.1	A	0.59	25.7	95.0
	EBR	A	0.28	3.9	13.4	A	0.46	5.3	24.8
	NBT	A	0.54	40.4	67.2	A	0.52	46.9	53.3
	NBR	**F**	**1.16**	**138.4**	**#191.0**	**F**	**1.17**	**149.0**	**#151.7**
	SBL	**F**	**1.01**	**66.0**	**#121.1**	D	0.89	36.6	**m#113.7**
	SBT	A	0.56	22.1	102.7	A	0.46	14.9	m96.4
	Overall	**F**	**1.02**	**51.4**	-	**C**	**0.79**	**38.4**	-
Carling Avenue & Archibald Street ***Unsignalized***	EBT/R	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-
	NBR	C	0.08	15.9	2.3	B	0.06	13.6	1.5
	Overall	**A**	**-**	**0.4**	-	**A**	**-**	**0.4**	-
Carling Avenue & Westgate SC (west) ***Signalized***	EBT	A	0.35	5.7	m35.3	A	0.26	12.6	55.3
	WBT/R	A	0.23	3.6	2.4	A	0.57	11.3	118.6
	SBL/R	A	0.12	17.6	10.8	A	0.26	33.7	25.5
	Overall	**A**	**0.30**	**5.1**	-	**A**	**0.52**	**12.3**	-
Carling Avenue & Westgate SC (east) ***Signalized***	EBL/U	A	0.39	4.4	11.3	C	0.83	59.4	58.0
	EBT	A	0.28	1.2	9.6	A	0.21	6.6	30.3
	WBL/U	A	0.02	5.3	m1.4	A	0.04	5.2	m1.4
	WBT/R	A	0.19	3.3	18.9	C	0.72	13.2	207.4
	NB	A	0.17	29.9	10.2	A	0.15	25.1	12.9
	SBL/T	A	0.17	47.0	12.2	A	0.40	51.0	33.2
	SBR	A	0.06	6.3	2.7	A	0.23	10.7	12.2
	Overall	**A**	**0.40**	**3.2**	-	**C**	**0.74**	**15.5**	-
Carling Avenue & Merivale Road ***Signalized***	EBT/R	B	0.62	20.0	82.7	C	0.72	46.3	86.2
	WBL	C	0.67	34.9	**#57.7**	**F**	**1.17**	**141.2**	**#222.5**
	WBT/R	A	0.22	16.4	36.0	C	0.72	28.4	151.6
	NBL	B	0.68	70.6	46.1	C	0.71	**80.8**	**#50.4**
	NBT	A	0.55	42.3	74.6	A	0.51	46.5	77.4
	NBR	C	0.76	22.7	74.4	A	0.46	7.4	21.2
	SBL	A	0.35	57.6	0.0	A	0.56	65.9	35.4
	SBT	C	0.76	52.3	60.2	D	0.88	**90.0**	**#124.3**
	SBR	A	0.34	10.0	18.6	A	0.33	14.8	26.5
	Overall	**C**	**0.71**	**27.2**	-	**E**	**0.91**	**50.7**	-
Merivale Road & Coldrey Avenue/Crerar Avenue ***Signalized***	EB	A	0.28	20.6	13.9	A	0.48	33.5	27.7
	WB	A	0.32	17.5	14.8	A	0.49	32.1	27.2
	NB	A	0.33	5.0	38.5	A	0.23	4.7	25.4
	SB	A	0.25	4.4	26.3	A	0.41	5.8	48.8
	Overall	**A**	**0.33**	**6.2**	-	**A**	**0.45**	**9.3**	-

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 0.90
m = metered queue
# = queue exceeds storage or mid-block length

During the AM peak, the study area intersections generally operate well. The Carling Avenue and Kirkwood Avenue intersections are noted to be congested with some extended queuing issues and the southbound left-turn at the south intersection being over capacity. The westbound left-turn at the Carling Avenue and Merivale Road is noted to have extended queues.

During the PM peak, the north Carling Avenue and Kirkwood Avenue intersection westbound shared left-turn/through/right-turn lanes and the southbound right-turn lane are all over capacity, experiencing long queues and delays, and the south intersection northbound right-turn is overcapacity with high delays and extended queues, and the southbound left-turn movement has extended queues. The intersection of Carling Avenue and Merivale Road is over capacity in the westbound left-turn lane, and high delays and extended queues are noted at the northbound left-turn, westbound left-turn and southbound through movements as well.

2.2.8 Collision Analysis

Collision data has been acquired from the City of Ottawa open data website (data.ottawa.ca) for five years prior to the commencement of this TIA for the surrounding study are road network. Highway 417 and ramps are not considered in this analysis. Table 3 summarizes the collisions types and conditions in the study area, Figure 8 illustrates the intersections and segments analyzed, and Table 4 summarizes the total collisions for each of these locations. Collision data is included in Appendix D.

Table 3: Study Area Collision Summary, 2014-2018

		Number	%
Total Collisions		**361**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	60	17%
	Property Damage Only	301	83%
Initial Impact Type	**Angled**	41	11%
	Rear end	106	29%
	Sideswipe	100	28%
	Turning Movement	88	24%
	SMV Unattended	1	0%
	SMV Other	22	6%
	Other	3	1%
Road Surface Condition	**Dry**	255	71%
	Wet	66	18%
	Loose Snow	21	6%
	Slush	8	2%
	Packed Snow	4	1%
	Ice	6	2%
	Unknown	1	0%
Pedestrian Involved		5	1%
Cyclists Involved		1	0%

Figure 8: Study Area Collision Records – Representation of 2014-2016

Source: https://maps.bikeottawa.ca/collisions/ Accessed: December 31, 2019

Table 4: Summary of Collision Locations, 2014-2018

	Number	%
Intersections / Segments	**361**	**100%**
Carling Ave WB @ Kirkwood Ave	120	33%
Merivale Rd @ 112 N of Carling Ave/Westgate SC	1	0%
Carling Ave EB @ Kirkwood Ave	104	29%
Carling Ave @ Hwy 417 Carling IC124r67	11	3%
Carling Ave @ Meath St	1	0%
Carling Ave @ 73 E of Archibald St/Westgate SC	2	1%
Carling Ave @ Westgate Sc E	11	3%
Carling Ave @ Merivale Rd	59	16%
Carling Ave @ Merivale Rd Extension	3	1%
Merivale Rd @ Thames St	4	1%
Merivale Rd @ Coldrey Ave/Crerar Ave	7	2%
Carling Ave WB btwn Kirkwood Ave & Hwy417 Ic124 Ramp67	11	3%
Carling Ave WB btwn Hwy417 IC124 Ramp67 & Hwy417 IC124 Ramp65	5	1%
Merivale Rd btwn Westgate SC & Carling Ave	1	0%
Kirkwood Ave btwn Carling Ave & Carling Ave	4	1%
Carling Ave EB btwn Kirkwood Ave & Hwy417 IC124 Ramp55	6	2%
Carling Ave WB btwn Hwy417 IC124 Ramp65 & 73 E of Archibald St/Westgate	1	0%
Carling Ave btwn Archibald St & 73 E of Archibald St/Westgate SC W	1	0%

Carling Ave EB btwn Westgate Sc E & 73 E of Archibald St/Westgate SC W	3	1%
Carling Ave EB btwn Westgate Sc E & Merivale Rd	1	0%
Merivale Rd btwn Carling Ave & Carling Ave	1	0%
Merivale Rd btwn Carling Ave & To Be Determined	1	0%
Merivale Rd btwn Merivale Rd & Merivale Rd	2	1%
Merivale Rd btwn Coldrey Ave & Thames St	4	1%

Within the study area, the intersections of Carling Avenue (westbound) at Kirkwood Avenue, Carling Avenue (eastbound) at Kirkwood Avenue, and Carling Avenue at Merivale Road are noted to have experienced higher collisions than other intersections. Table 5, Table 6, and Table 7 summarize the collision types and conditions for each of the Carling Avenue (westbound) at Kirkwood Avenue, Carling Avenue (eastbound) at Kirkwood Avenue, and Carling Avenue at Merivale Road intersections.

The highest number of collisions on any segment in the study area is Carling Avenue (westbound) between Kirkwood Avenue and the Highway 417 off-ramp, with 11 collisions occurring on this segment during the 2014-2018 period, eight of them sideswipe, two being rear end and one being single motor vehicle other. The improvements illustrated in Figure 9 in Section 2.3.1 should have a positive effect on collisions at this location.

Table 5: Carling Avenue (Westbound) at Kirkwood Avenue Collision Summary

		Number	%
Total Collisions		**120**	**100%**
Classification	Fatality	0	0%
	Non-Fatal Injury	17	14%
	Property Damage Only	103	86%
Initial Impact Type	Angle	10	8%
	Rear end	21	18%
	Sideswipe	42	35%
	Turning Movement	39	33%
	SMV Other	7	6%
	Other	1	1%
Road Surface Condition	Dry	88	73%
	Wet	24	20%
	Loose Snow	3	3%
	Slush	1	1%
	Packed Snow	1	1%
	Ice	3	3%
Pedestrian Involved		2	2%
Cyclists Involved		0	0%

The Carling Avenue (westbound) at Kirkwood Avenue intersection had a total of 120 collisions during the 2014-2018 time period, with 103 involving property damage only and the remaining 17 having non-fatal injuries. The collision types are most represented by sideswipe at 42 collisions, and turning movement at 39 collisions, followed by 21 rear end collisions, ten angle, seven single motor vehicle other and one other. Very shortly upstream from the westbound approach, a freeway off-ramp intersects Carling Avenue and drivers must weave across several lanes to make a left turn onto Kirkwood Avenue, often in several stages, possibly affecting the incidence of sideswipe on immediate approach of the intersection. Planned modifications to the east leg of this intersection, will restrict drivers exiting the freeway from entering the westbound left-turn lanes at this intersection, reducing sideswipe, rear end and angled collisions. Turning movements will also be reduced slightly although the two movements (southbound and westbound) will remain. Weather conditions do not affect collisions at this location.

Table 6: Carling Avenue (Eastbound) at Kirkwood Avenue Collision Summary

		Number	%
Total Collisions		**104**	**100%**
Classification	Fatality	0	0%
	Non-Fatal Injury	18	17%
	Property Damage Only	86	83%
Initial Impact Type	Angle	9	9%
	Rear end	43	41%
	Sideswipe	24	23%
	Turning Movement	22	21%
	SMV Other	5	5%
	Other	1	1%
Road Surface Condition	Dry	68	65%
	Wet	20	19%
	Loose Snow	9	9%
	Slush	5	5%
	Packed Snow	68	65%
	Ice	1	1%
	Unknown	1	1%
Pedestrian Involved		1	1%
Cyclists Involved		0	0%

The Carling Avenue (eastbound) at Kirkwood Avenue intersection had a total of 104 collisions during the 2014-2018 time period, with 86 involving property damage only, and the remaining 18 having non-fatal injuries. The collision types are most represented by rear end, with 43 collisions, followed by sideswipe at 24 and turning movement at 22, with the remainder represented by angle, single motor vehicle other, and other in descending frequency. Rear end and sideswipe collisions are consistent with congested intersections, as several movements at this intersection experience significant queuing. The northbound right-turning vehicles are likely the cause of the turning movement collisions through a combination of violating the 'no right on red' restriction and weaving towards the Highway 417 on-ramp. Weather conditions are not considered to have an effect on collisions at this location.

Table 7: Carling Avenue at Merivale Road Collision Summary

		Number	%
Total Collisions		**56**	**100%**
Classification	Fatality	0	0%
	Non-Fatal Injury	13	23%
	Property Damage Only	43	77%
Initial Impact Type	Angle	15	27%
	Rear end	17	30%
	Sideswipe	8	14%
	Turning Movement	16	29%
Road Surface Condition	Dry	40	71%
	Wet	8	14%
	Loose Snow	6	11%
	Slush	2	4%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

The Carling Avenue at Merivale Road intersection had a total of 56 collisions during the 2014-2018 time period, with 86 involving property damage only, and the remaining 18 having non-fatal injuries. The collision types are mostly split between rear end with 17, turning movement with 16, and angle with 15, additionally with eight sideswipe collisions occurring in this period. Weather conditions do not affect collisions at this location.

2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

No roadway improvements are included within the Ottawa TMP for the Study Area. The Rapid Transit and Transit Priority Network's Affordable Network plan includes continuous transit priority corridor along Carling Avenue, with the City's Planned Construction Projects portal providing a window of three-to-five years for this work to be undertaken. City staff have confirmed the bus lanes will be implemented in the next 3 years.

The Affordable Network Plan also identifies Merivale Road for isolated transit priority measures south of Carling Avenue. As part of the Rapid Transit and Transit Priority Network's Network Concept plan, a new LRT line is identified along Carling Avenue and continuous bus lanes are identified along Merivale Road south of Carling Avenue.

Carling Interchange Modifications

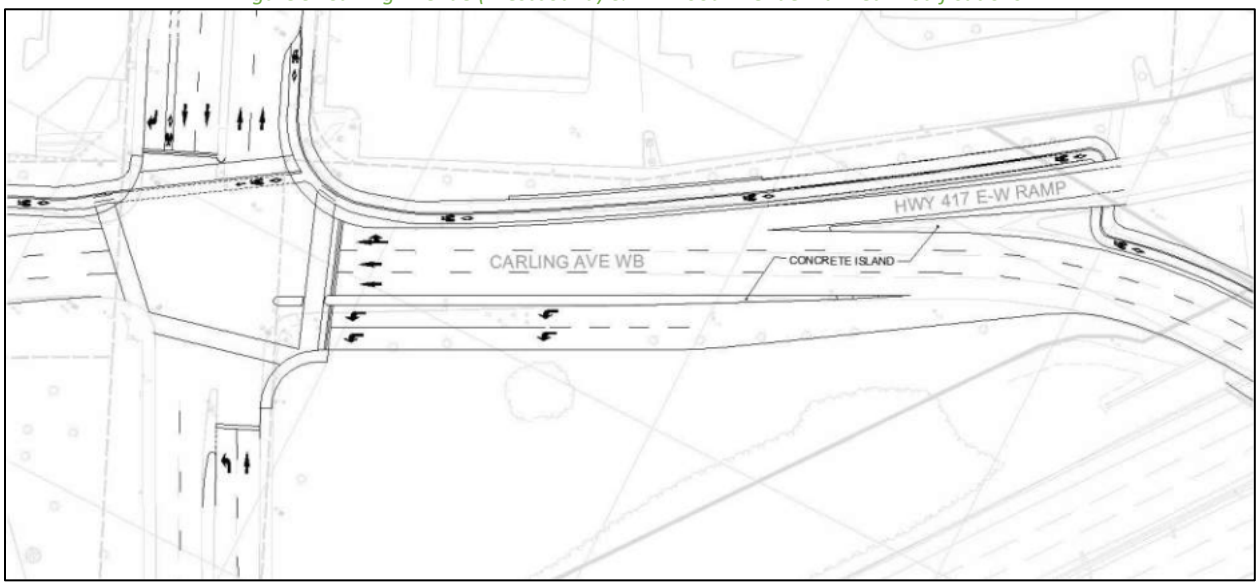
The Ministry of Transportation of Ontario is currently in the process of expanding Highway 417 and is modifying the interchange at Carling Avenue and Kirkwood Avenue.

One major modification to this interchange has been the closure of the Carling Avenue (westbound) on-ramp to Highway 417 (eastbound) in March of 2018. Drivers travelling westbound on Carling Avenue looking to access the eastbound Highway 417 will now primarily divert to Kirkwood Avenue, continuing to Carling Avenue (eastbound) to merge onto the Carling Avenue (eastbound) on-ramp to Highway 417 (eastbound). This modification was predicted to increase traffic at both the Carling Avenue (westbound) at Kirkwood Avenue, and Carling Avenue (eastbound) at Kirkwood Avenue intersections.

Another major modification to the interchange includes the addition of raised concrete islands to the intersections of Carling Avenue (westbound) and the Highway 417 off-ramp, and Carling Avenue (westbound) and Kirkwood Avenue. As drivers will be prevented from exiting the freeway onto Carling Avenue (westbound) and completing a left turn onto Kirkwood Avenue, they must instead continue along Carling Avenue (westbound) to complete this maneuver downstream of this intersection. The changes to the Carling Avenue (westbound) and Kirkwood Avenue intersection are illustrated in Figure 9.

Saigon Court will also be signalized creating a loop that replaces the westbound left-turn from the highway and westbound right-turn from Carling Avenue.

Figure 9: Carling Avenue (Westbound) & Kirkwood Avenue Planned Modifications



Source: Transportation Environmental Study Report, Appended Materials, Traffic Summary Report (WSP, 2017)

2.3.2 Other Study Area Developments

1354 Carling Avenue & 1376 Carling Avenue

The proposed development includes a zoning amendment to increase permitted height to 20 storeys and a site plan for the construction of four buildings; two mixed-use high-rise buildings fronting onto Carling Avenue, and two mid-rise residential buildings fronting onto the adjacent local side streets. The site consists of 403 Units and 619m^2 of ground floor retail.

1400 Carling Avenue

The proposed development includes a zoning amendment to increase permitted height to 13 storeys and a site plan for the addition of one ten-storey and one 12-storey tower onto an existing retirement home.

1272 Carling Avenue

The proposed development includes a site plan for the addition of two storeys onto an existing hotel, comprising 24 additional units.

1309 Carling Avenue

The proposed development includes a site plan which includes the demolition of the existing mall and surrounding retail structures, and the addition of mixed-use towers. The site plan does not modify any existing accesses and development is to take place in three phases. Beyond its current traffic generation, all three phases are anticipated to generate 360 new two-way AM peak hour auto trips and 400 new two-way PM peak hour auto trips. (Parsons 2016)

900 Merivale Road

The development includes a site plan for a four-storey addition connected to the existing building by a one-storey link. The site consists of 42 new seniors' residential units, in addition to the expansion of an existing health clinic, which were constructed in 2019.

3 Study Area and Time Periods

3.1 Study Area

The study area will include the intersections of:

- Carling Avenue at:
  - Kirkwood Avenue (North)
  - Kirkwood Avenue (South)
  - Westgate Shopping Centre Access (West)
  - Westgate Shopping Centre Access (East)
  - Merivale Road
  - Archibald Street
- Merivale Road at Westgate Shopping Centre Access (North)
- Merivale Road at Coldrey Avenue at Crerar Avenue
- Archibald Street at Site Access

The boundary roads are Archibald Street and Carling Avenue and no screenlines are present near the proposed site and none will be reviewed as part of this study.

3.2 Time Periods

As the proposed development is composed primarily of residential units with a ground floor retail component, the AM and PM peak hours will be examined.

3.3 Horizon Years

The anticipated build-out year is 2023. As a result, the full build-out plus five years horizon year is 2028.

4 Exemption Review

Table 8 summarizes the exemptions for this TIA.

Table 8: Exemption Review

Module	Element	Explanation	Exempt/Required
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	Only required for site plans	Required
	4.2.3 New Street Networks	Only required for plans of subdivision	Exempt
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	Required
	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Required
Network Impact Component			
4.5 Transportation Demand Management	All Elements	Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	Required
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Exempt

Module	Element	Explanation	Exempt/Required
4.8 Network Concept		Only required when proposed development generates more than 200 person-trips during the peak hour in excess of equivalent volume permitted by established zoning	Exempt (As-of-right permits approximately 88 units. Total difference of approximately 70 people trips.)

5 Development Generated Travel Demand

5.1 Trip Generation and Travel Modes

This TIA has been prepared using the vehicle and person trip rates for the high-rise apartment using the TRANS Trip Generation Study Report (2009) and shopping centre for the ground floor retail using the ITE Trip Generation Manual 10th Edition (2017). Table 9 summarizes the person trip rates for the proposed land uses.

Table 9: Trip Generation Person Trip Rates

Dwelling Type	Land Use Code	Peak Hour	Vehicle Trip Rate	Person Trip Rates
High-rise Apartments	222 (TRANS)	AM	0.24	0.65
		PM	0.27	0.68
Shopping Centre	820 (ITE)	AM	0.94	1.20
		PM	3.81	4.88

Using the above Person Trip rates, the total person trip generation has been estimated. Table 10 below illustrates the total person trip generation by dwelling type.

Table 10: Total Person Trip Generation

Land Use	Units/ sq ft	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
High-rise Apartments	175	27	87	114	74	45	119
Shopping Centre	8,525	6	4	10	20	22	42
Total Person Trips		**33**	**91**	**124**	**94**	**67**	**161**

Using the most recent National Capital Region Origin-Destination survey (OD Survey), the existing mode shares for the Merivale district have been summarized in Table 11. The proposed site includes a number of design features (reduced auto parking, increased bike parking, proximity to transit priority, etc.) that will result in modified modal shares. The modified modal share is based on the parking provided.

Table 11: Mode Share – Merivale

Travel Mode	Merivale	Proposed Site
Auto Driver	60%	40%
Auto Passenger	15%	10%
Transit	20%	40%
Bicycle	1%	4%
Walk	4%	6%
Total	**100%**	**100%**

Using the proposed site-specific mode shares and the person trip rates, the person trips by mode have been projected. Table 12 summarizes the trip generation by mode.

Table 12: Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	40%	14	40	54	40	29	69
Auto Passenger	10%	4	9	13	10	7	17
Transit	40%	14	40	54	40	29	69
Bicycle	5%	2	5	7	5	3	8
Walk	5%	2	5	7	5	3	8
Total	**100%**	**35**	**98**	**135**	**100**	**71**	**171**

As shown above, 54 AM and 69 PM new peak hour two-way vehicle trips are projected as a result of the proposed development.

5.2 Trip Distribution

To understand the travel patterns of the subject development the OD Survey has been reviewed to determine the travel for the residential development patterns were applied based on the build-out of the Merivale district. Table 13 below summarizes the distributions.

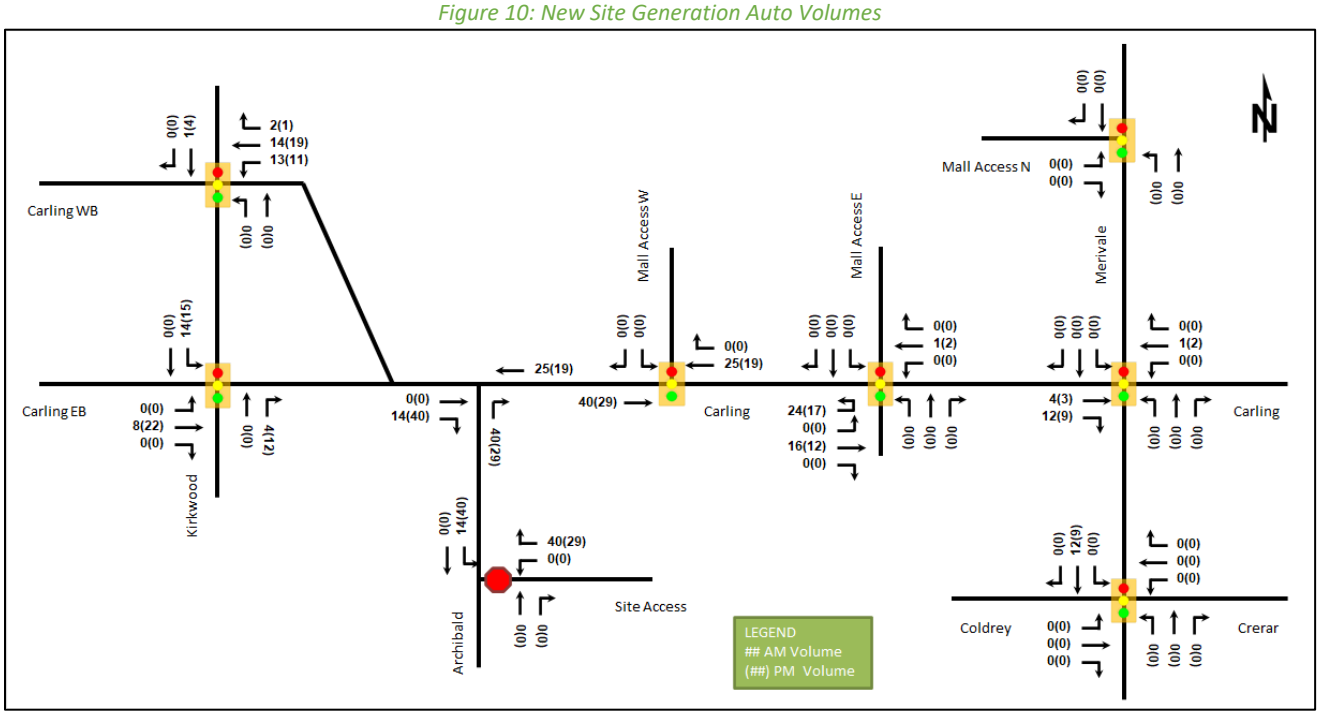
Table 13: OD Survey Existing Mode Share – Merivale

To/From	% of Trips	Inbound Assignment	Outbound Assignment
North	10%	10% via Kirkwood	5% via Kirkwood, 5% via Holland
South	40%	30% via Kirkwood, 10% via Hwy417	30% via Merivale, 10% via Hwy417
East	35%	30% via Hwy417, 5% via Carling	30% via Hwy 417, 5% via Carling
West	15%	15% via Hwy417	15% via Hwy417
Total	100%		

5.3 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the Study Area road network. Figure 10 illustrates the new site generated volumes.

Figure 10: New Site Generation Auto Volumes

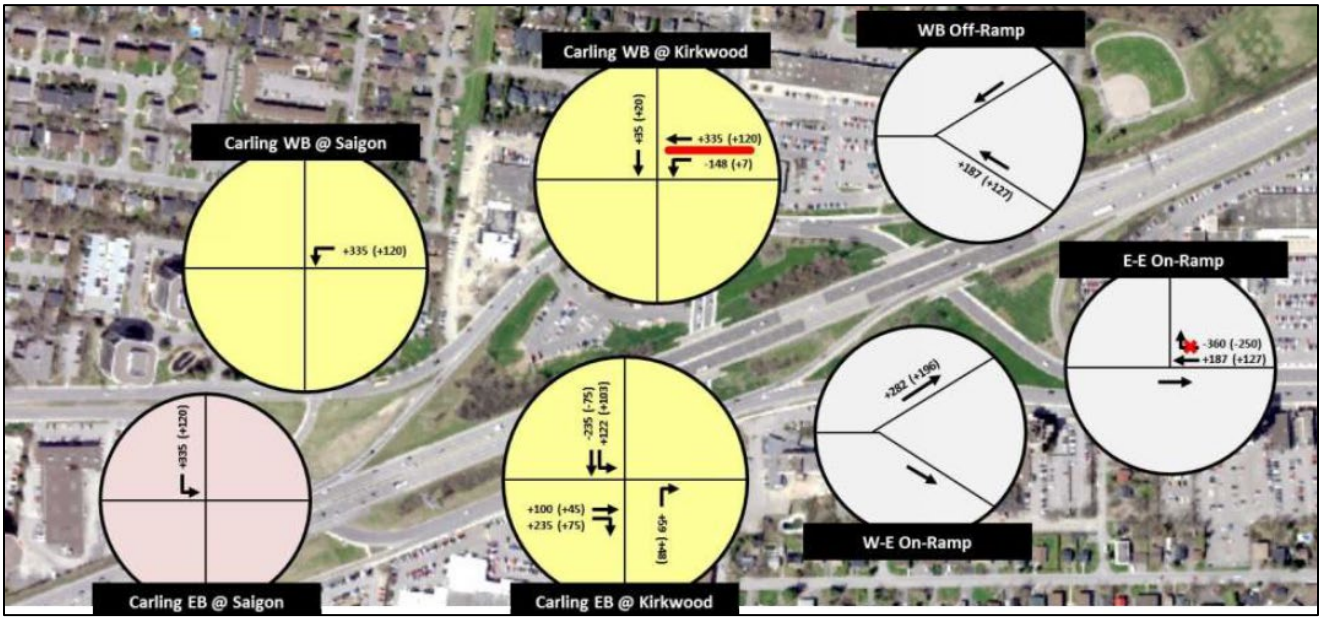


6 Background Network Travel Demand

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3 and the two projects that are scheduled to occur within the study horizons are the Carling Transit Priority and the Carling Avenue and Highway 417 interchange improvements. While the closure of the on-ramp from Carling Avenue (westbound) will have been captured by the count data, traffic changes from the adjacent median installation, as illustrated in Figure 9 must still be explicitly accounted for. Projected adjustments to area traffic associated with the latter treatment from the appended materials of the MTO Traffic Summary Report (WSP, 2017) are illustrated in Figure 11 and have been included as part of all future traffic projections within this report.

Figure 11: AM (PM) Peak Hour Net Change in traffic volumes due to Proposed E-E On-Ramp Closure and Construction of Barrier on Carling Avenue Westbound at Kirkwood Avenue



6.2 Background Growth

A review of the background projections from the City's TRANS Regional Model for the 2011 and 2031 horizons was completed to determine the background growth for each of the study area roadways. Table 14 summarizes the results of the model and the projections are provided in Appendix E.

Table 14: TRANS Regional Model Projections – Study Area Growth Rates

Street	Direction Growth Percentage	
	Eastbound	**Westbound**
Carling	0.45%	-0.06%
Coldrey/Crerar	0.00%	-3.36%
	Northbound	**Southbound**
Kirkwood	0.72%	-1.39%
Merivale	0.09%	1.39%

In general, the TRANS projections identify a growth rate range of -3.36% and 1.39%. Therefore, a growth rate of 1.00% will be applied to the mainline arterial volumes and to all movements at the major intersections of Carling Avenue westbound and Kirkwood Avenue, Carling Avenue eastbound and Kirkwood Avenue, and Carling Avenue and Merivale Road.

6.3 Other Developments

The other area developments are noted in Section 2.3. The development of 1354 Carling Avenue, and that of 1309 Carling Avenue will be explicitly accounted for in the future background volumes using the projected volumes from their respective Transportation Impact Assessments (Parsons, 2017; 2019).

7 Demand Rationalization

7.1 2023 Future Background Intersection Operations

Figure 12 illustrates the 2023 background volumes and Table 15 summarizes the background intersection operations. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. U-turn movements have been included in left-turning volumes within the volume figures and have been modelled as separate movements within Synchro™. The Synchro worksheets are provided in Appendix F.

Figure 12: 2023 Future Background Volumes

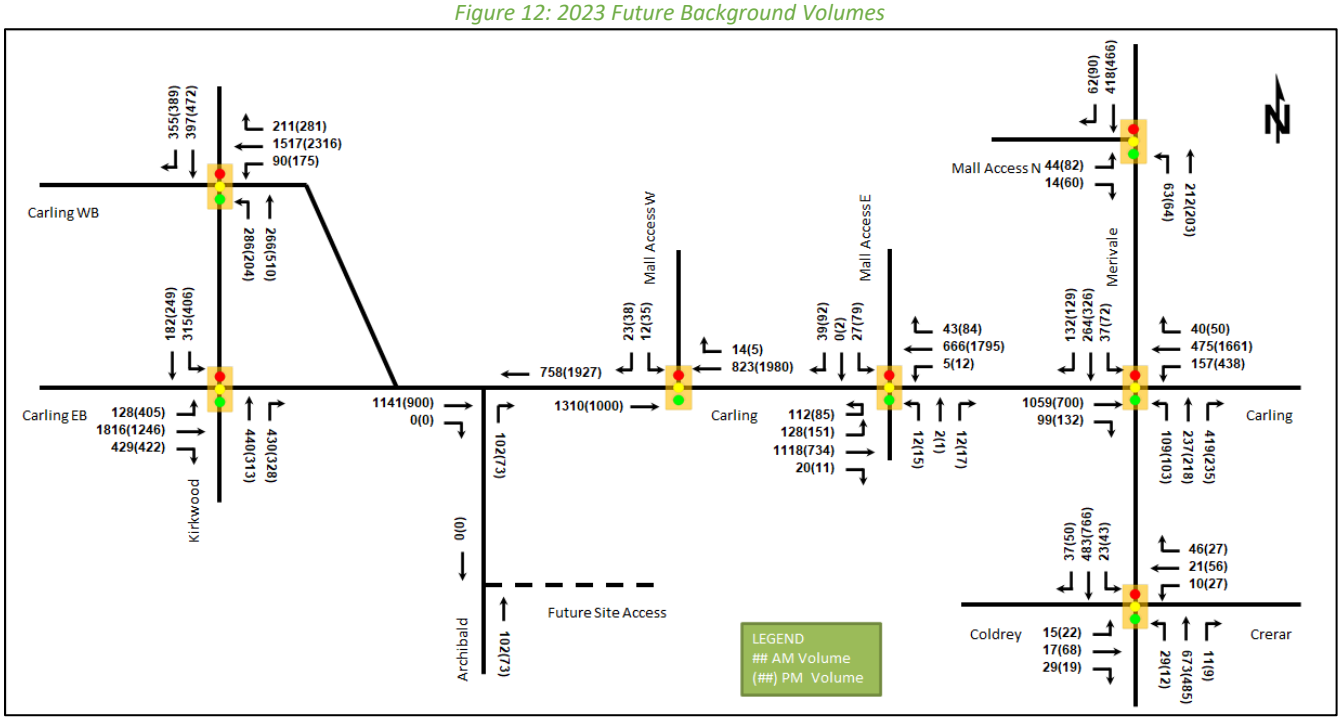


Table 15: 2023 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Carling Avenue (westbound) & Kirkwood Avenue *Signalized*	WBL	A	0.06	19.3	11.2	A	0.11	15.8	16.7
	WBT/R	C	0.79	31.1	151.6	**F**	**1.10**	**80.7**	**#281.3**
	NBL	B	0.70	25.3	m81.0	B	0.65	32.0	57.5
	NBT	A	0.35	15.4	m74.8	C	0.75	41.3	159.4
	SBT	A	0.51	41.9	56.1	B	0.62	46.0	70.9
	SBR	D	0.90	59.5	**#108.5**	E	1.00	**82.9**	**#139.9**
	Overall	**D**	**0.81**	**33.5**	-	**F**	**1.05**	**67.6**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road & Westgate SC ***Signalized***	EBL	A	0.14	19.8	9.5	A	0.29	24.9	16.9
	EBR	A	0.05	9.6	3.3	A	0.19	8.0	7.3
	NBL	A	0.09	1.4	1.5	A	0.11	4.4	19.6
	NBT	A	0.16	1.4	3.8	A	0.16	5.0	64.5
	SBT	A	0.32	6.3	46.6	A	0.38	7.0	52.4
	SBR	A	0.06	2.3	4.4	A	0.09	1.9	5.0
	Overall	**A**	**0.33**	**5.1**	-	**A**	**0.39**	**7.5**	-
Carling Avenue (eastbound) & Kirkwood Avenue ***Signalized***	EBL	A	0.19	22.1	33.7	A	0.56	28.2	105.8
	EBL/T	E	0.94	43.6	#193.9	B	0.63	26.6	103.6
	EBR	A	0.51	4.3	18.3	A	0.49	4.0	17.3
	NBT	A	0.48	38.6	62.3	A	0.47	45.3	49.3
	NBR	F	1.05	100.1	#175.4	F	1.11	130.5	#148.3
	SBL	C	0.72	41.0	102.9	D	0.81	26.7	#112.6
	SBT	A	0.22	26.3	64.7	A	0.32	8.0	14.3
	Overall	**E**	**0.94**	**43.3**	-	**C**	**0.79**	**34.4**	-
Carling Avenue & Archibald Street ***Unsignalized***	EBT/R	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-
	NBR	C	0.23	15.6	6.8	B	0.13	12.5	3.8
	Overall	**A**	**-**	**1.3**	-	**A**	**-**	**0.9**	-
Carling Avenue & Westgate SC (west) ***Signalized***	EBT	A	0.53	5.9	m54.5	A	0.39	8.1	72.9
	WBT	A	0.33	3.8	6.1	C	0.78	15.4	m104.8
	WBR	A	0.01	1.8	m0.2	A	0.00	6.6	m0.3
	SBL/R	A	0.11	18.0	10.1	A	0.26	34.5	24.4
	Overall	**A**	**0.45**	**5.3**	-	**B**	**0.70**	**13.4**	-
Carling Avenue & Westgate SC (east) ***Signalized***	EBL/U	A	0.44	4.0	6.8	E	0.92	133.8	#84.5
	EBT	A	0.41	1.8	13.3	A	0.30	2.4	8.0
	EBR	A	0.02	0.1	m0.0	A	0.01	0.0	m0.0
	WBL/U	A	0.01	5.2	m0.9	A	0.03	4.8	m0.8
	WBT	A	0.25	4.2	26.7	E	0.96	66.7	m#321.8
	WBR	A	0.04	2.4	m1.6	A	0.11	1.0	m1.9
	NB	A	0.15	30.2	9.8	A	0.13	25.0	12.0
	SBL/T	A	0.18	47.3	12.6	A	0.39	50.6	32.2
	SBR	A	0.19	14.3	8.6	A	0.29	10.7	13.7
	Overall	**A**	**0.42**	**3.9**	-	**D**	**0.84**	**51.7**	-
Carling Avenue & Merivale Road ***Signalized***	EBT	D	0.82	30.6	#162.0	D	0.83	58.4	#120.5
	EBR	A	0.16	1.3	2.5	A	0.29	7.6	20.9
	WBL	B	0.67	37.6	#66.2	E	0.92	60.5	#167.6
	WBT	A	0.27	17.3	49.0	E	0.93	84.5	#275.6
	WBR	A	0.05	0.1	0.0	A	0.06	1.1	2.0
	NBL	B	0.64	68.6	43.1	B	0.68	78.5	44.7
	NBT	A	0.48	39.4	69.4	A	0.50	46.4	73.2
	NBR	B	0.68	17.0	59.8	A	0.44	7.5	20.4
	SBL	A	0.33	57.4	0.0	A	0.53	65.1	33.4
	SBT	C	0.74	51.3	57.8	D	0.85	79.3	#106.3
	SBR	A	0.33	10.0	17.4	A	0.32	13.8	22.6
	Overall	**C**	**0.76**	**28.9**	-	**E**	**0.92**	**64.2**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road & Coldrey Avenue/Crerar Avenue ***Signalized***	EB	A	0.25	20.3	12.9	A	0.44	31.7	25.1
	WB	A	0.30	17.4	13.9	A	0.45	30.3	24.5
	NB	A	0.31	4.9	35.2	A	0.22	4.5	23.5
	SB	A	0.24	4.4	25.1	A	0.38	5.5	44.5
	Overall	**A**	**0.30**	**6.0**	**-**	**A**	**0.41**	**8.7**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane m = metered queue
PHF = 1.00 # = queue exceeds storage or mid-block length

The addition of the bus lanes along Carling Avenue result in a number of eastbound and westbound capacity impacts. At the Carling Avenue & Westgate SC (east), the eastbound left-turn/u-turn delays more than double and the westbound through movement will nearly reach capacity with high delays and extended queuing during the PM peak. Similarly, the Carling Avenue & Merivale Road intersection eastbound through movement queues will increase during the AM peak and the eastbound through, westbound through, and northbound left-turn queues will increase during the PM peak, with high delays on the southbound through and westbound through, as the westbound through movement additionally approaches capacity.

As these capacity, queuing, and delay concerns are a result of the planned transit priority project, it is assumed that these are the intended operations from the City's perspective at present. A corridor study, outside the scope of this analysis, will be required along Carling Avenue to assess the intersections and limit the impact of the bus lanes.

The installation of the raised concrete islands at the intersection of Carling Avenue (westbound) and the Highway 417 off-ramp, and Carling Avenue (westbound) and Kirkwood Avenue most notably results in upstream operational improvements on the AM southbound left movement at the intersection of Carling Avenue (eastbound) & Kirkwood Avenue.

The remaining intersection operations operate similarly to existing, and the peak hour factor increasing from 0.90 to 1.00 provides marginal improvement in the remaining operations.

7.2 2028 Future Background Intersection Operations

Figure 13 illustrates the 2028 background volumes and Table 16 summarizes the background intersection operations. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. U-turn movements have been included in left-turning volumes within the volume figures and have been modelled as separate movements within Synchro™. The Synchro worksheets are provided in Appendix G.

Figure 13: 2028 Future Background Volumes

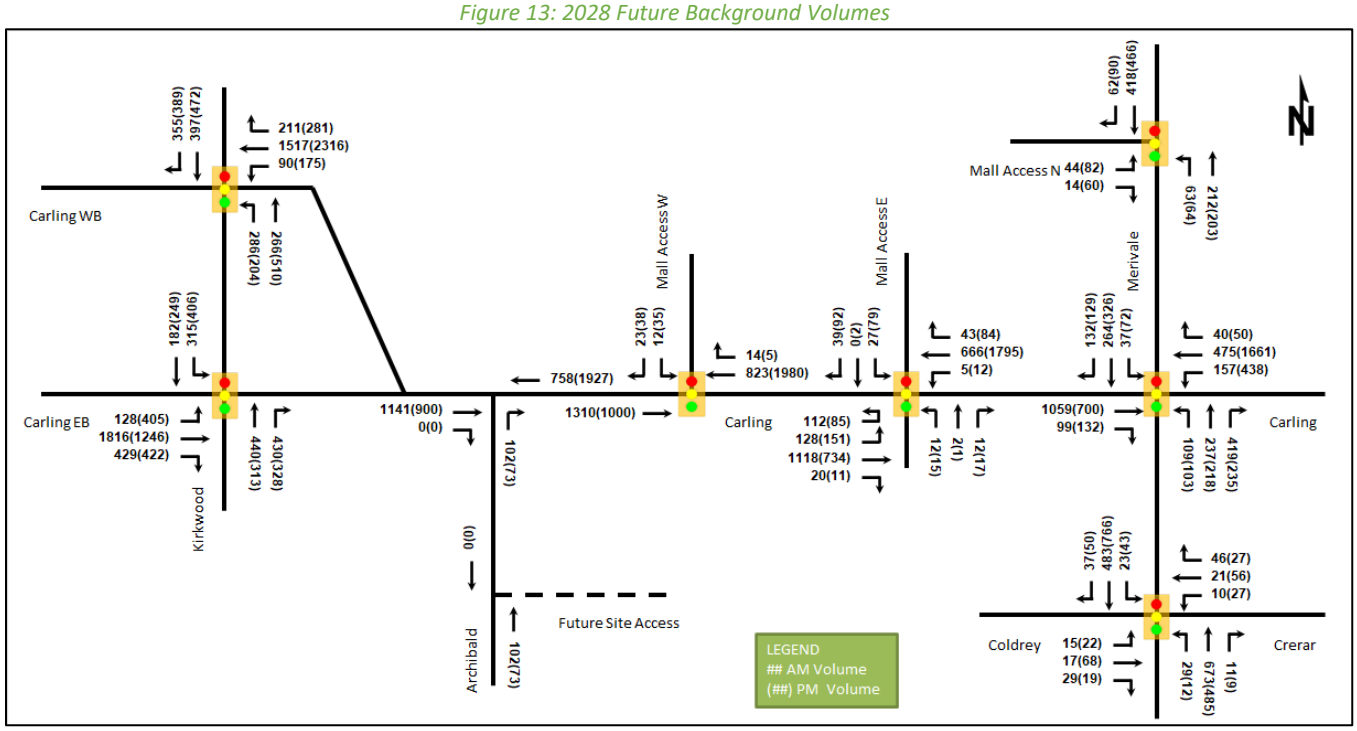


Table 16: 2028 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Carling Avenue (westbound) & Kirkwood Avenue *Signalized*	WBL	A	0.06	15.6	7.9	A	0.11	15.8	17.2
	WBT/R	D	0.85	29.7	165.6	**F**	**1.15**	**102.6**	**#304.1**
	NBL	C	0.74	26.6	m84.5	C	0.70	34.4	**#61.0**
	NBT	A	0.36	15.1	m78.2	C	0.78	45.2	168.5
	SBT	A	0.52	41.3	58.8	B	0.66	47.1	74.7
	SBR	E	0.92	62.0	**#118.5**	**F**	**1.06**	**97.3**	**#150.9**
	Overall	**D**	**0.85**	**33.0**	-	**F**	**1.11**	**82.7**	-
Merivale Road & Westgate SC *Signalized*	EBL	A	0.14	19.8	9.5	A	0.29	24.9	16.9
	EBR	A	0.05	9.6	3.3	A	0.19	8.0	7.3
	NBL	A	0.09	1.4	1.6	A	0.11	4.2	18.5
	NBT	A	0.17	1.3	4.1	A	0.17	4.8	67.5
	SBT	A	0.33	6.4	49.8	A	0.39	7.2	56.0
	SBR	A	0.06	2.3	4.4	A	0.09	1.9	5.0
	Overall	**A**	**0.35**	**5.2**	-	**A**	**0.40**	**7.5**	-
Carling Avenue (eastbound) & Kirkwood Avenue *Signalized*	EBL	A	0.20	22.3	35.1	A	0.59	29.2	112.9
	EBL/T	E	0.99	51.9	**#211.2**	B	0.66	27.3	110.0
	EBR	A	0.52	4.4	18.9	A	0.52	5.4	27.1
	NBT	A	0.51	39.5	65.4	A	0.50	46.2	51.7
	NBR	**F**	**1.11**	**120.0**	**#186.6**	**F**	**1.19**	**157.0**	**#157.1**
	SBL	C	0.77	43.7	**#106.7**	D	0.86	28.7	**#116.1**
	SBT	A	0.24	26.1	65.5	A	0.34	8.0	15.5
	Overall	**E**	**1.00**	**49.9**	-	**D**	**0.84**	**37.9**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Carling Avenue & Archibald Street ***Unsignalized***	EBT/R	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-
	NBR	C	0.24	16.2	6.8	B	0.14	12.7	3.8
	Overall	**A**	**-**	**1.3**	**-**	**A**	**-**	**0.9**	**-**
Carling Avenue & Westgate SC (west) ***Signalized***	EBT	A	0.55	6.1	m54.8	A	0.41	8.3	77.4
	WBT	A	0.35	3.8	6.3	D	0.82	17.2	m104.6
	WBR	A	0.01	1.9	m0.3	A	0.00	6.6	m0.2
	SBL/R	A	0.11	18.0	10.1	A	0.26	36.3	25.1
	Overall	**A**	**0.47**	**5.4**	**-**	**C**	**0.73**	**14.7**	**-**
Carling Avenue & Westgate SC (east) ***Signalized***	EBL/U	A	0.45	4.4	6.6	E	0.92	**134.7**	**#85.0**
	EBT	A	0.43	1.8	13.4	A	0.32	2.5	8.3
	EBR	A	0.02	0.1	m0.0	A	0.01	0.0	m0.0
	WBL/U	A	0.02	5.2	m1.1	A	0.04	4.9	m0.9
	WBT	A	0.26	4.2	28.0	**F**	**1.01**	**66.5**	**m#319.6**
	WBR	A	0.04	2.4	m1.7	A	0.11	0.9	m1.7
	NB	A	0.15	30.2	9.8	A	0.13	25.0	12.0
	SBL/T	A	0.18	47.3	12.6	A	0.39	50.6	32.2
	SBR	A	0.19	14.3	8.6	A	0.30	13.6	16.4
	Overall	**A**	**0.44**	**3.9**	**-**	**D**	**0.87**	**51.7**	**-**
Carling Avenue & Merivale Road ***Signalized***	EBT	D	0.90	39.6	**#172.8**	E	0.90	**80.8**	**#130.2**
	EBR	A	0.17	1.6	3.3	A	0.31	8.0	22.0
	WBL	B	0.68	39.6	**#73.2**	E	0.99	76.6	**#186.3**
	WBT	A	0.29	17.8	51.8	E	0.98	**89.2**	**#298.5**
	WBR	A	0.05	0.1	0.0	A	0.07	1.3	2.5
	NBL	B	0.66	69.9	45.3	C	0.70	79.8	**#48.2**
	NBT	A	0.50	39.4	72.9	A	0.51	46.6	77.1
	NBR	C	0.71	19.6	69.6	A	0.45	7.5	21.0
	SBL	A	0.34	57.6	0.0	A	0.55	65.8	34.7
	SBT	C	0.76	52.2	59.9	D	0.88	**86.6**	**#120.9**
	SBR	A	0.34	10.1	18.3	A	0.33	14.4	25.1
	Overall	**D**	**0.81**	**32.8**	**-**	**E**	**0.97**	**72.4**	**-**
Merivale Road & Coldrey Avenue/Crerar Avenue ***Signalized***	EB	A	0.25	20.3	12.9	A	0.44	31.7	25.1
	WB	A	0.30	17.4	13.9	A	0.45	30.3	24.5
	NB	A	0.32	4.9	37.3	A	0.23	4.6	24.8
	SB	A	0.25	4.4	26.4	A	0.40	5.6	47.3
	Overall	**A**	**0.32**	**6.1**	**-**	**A**	**0.42**	**8.7**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

The study area intersection operations for the 2028 future background horizon operate similarly to the 2023 future background horizon with similar capacity issues noted due to the conversion of a travel lane to a bus lane along Carling Avenue.

7.3 Demand Rationalization Conclusions

The installation of the raised concrete islands is expected to improve existing capacity issues at Kirkwood Avenue, and the bus lane dedication is expected to introduce auto capacity constraints along Carling Avenue. The modal share targets are supported by the planned transit improvements, and the proposed site design considerations

are aligned with the increase in quality of transit service. As such, the site-generated auto volumes are marginal and not anticipated to exacerbate any existing capacity constraints in the study area. Therefore, no further demand rationalization is required.

8 Development Design

8.1 Design for Sustainable Modes

The proposed development is a mixed-use building with ground floor retail and residential above. Parking is provided underground for the residential component and at grade for the commercial component. Bike parking is provided internal to the building. Hard surface connections are provided between all building entrances and surrounding pedestrian facilities which include a new sidewalk along the site frontage on Archibald Street. All bus routes referenced in section 2.2.5 are within 400m of building entrances.

8.2 Circulation and Access

The site access is provided as an all-movements driveway onto Archibald Street and provides access to the internal parking, external parking and garbage collection, which will be collected in the drive aisle, with the collection vehicle reversing out of the site. The closure of Archibald Street will require waste collection to turn around when collecting, therefore this maneuver is consistent with future operations. As two sides of the proposed building front public roads, emergency services should be able to access the site via these rights of way.

9 Parking

9.1 Parking Supply

Parking for residential, 39 tenant spaces and 16 visitor spaces, is underground, and eight commercial spaces are located at grade. Bicycle parking is provided for with 110 spaces located internal to the building. Minimum vehicle parking provision for the site is 82 tenant spaces and 16 visitor spaces, and minimum bicycle parking provision is 88. The bicycle parking provision exceeds the minimum by-law requirements, and the vehicle parking provision for residential tenant spaces is under the requirement by 43.

9.2 Spillover Parking

As the proposed parking provision is more than 15% below that prescribed by the by-law, spillover parking should be considered. While the by-law prescribes 82 parking spaces for tenants, the site plan proposes 39 spaces for tenants, leaving 43 spaces fewer than otherwise required.

A number of mitigating factors are present within the proposed development, however, chief among them will be marketing the units as not to have access to parking. Making prospective tenants aware that they will have no parking space early in the process of engagement will select for tenants who do not require regular use of a car. Only a minority of prospective tenants with vehicles might proceed to lease a unit with no access to parking, and at a conservative rate of 20% doing so, spillover may translate to nine vehicles.

Within 400 metres walk of the site, Archibald Street currently provides on-street parking for up to 13 vehicles, and Thames Street currently provides on-street parking for more than 42 vehicles, both of which are currently unsigned three-hour daytime parking zones–six hours overnight. While not permitted, additional parking locations may include the adjacent Travelodge Hotel, Westgate Shopping Centre.

The support of a reduced parking rate at this site also includes:

- Transit priority availability will drastically increase the attractiveness of this mode, in concert with a TDM strategy to support its selection
- The visitor parking requirements have been met and are not expected to contribute to any spillover impacts
- Closing Archibald Street severs the auto connectivity and conceptual link to the southern community and introduces a barrier to the surrounding community

Should the adjacent community remain concerned with parking, it has been recommended through the public consultation process that a permit area can be created to assist in area enforcement or signed parking be introduced to further restrict parking beyond the typical by-law stipulations. It should be noted, however, that these measures are not without impact on the residents of the affected community and should be considered when discussing with City Staff and the Ward Councillor.

10 Boundary Street Design

Table 17 summarizes the MMLOS analysis for the site boundary roads of Carling Avenue and Archibald Street. The existing and future conditions for Carling Avenue will be considered in separate rows. The analysis is based on the policy area of Arterial Mainstreet for Carling Avenue and for General Urban Area for Archibald Street. MMLOS worksheets are provided in Appendix H.

Table 17: Boundary Street Segment MMLOS Analysis

Segment	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TkLOS	Target
Carling Avenue (Existing)	**E**	C	**D**	C	D	D	C	D
Carling Avenue (Future)	C	C	**D**	C	B	D	C	D
Archibald Street (Existing)	**F**	C	B	D	N/A	N/A	B	N/A
Archibald Street (Future)	B	C	B	D	N/A	N/A	B	N/A

Existing pedestrian LOS scores do not meet the area targets along Archibald Street due to lack of pedestrian facilities and do not meet targets along Carling Avenue due to the high operating speeds and volumes of the arterial roadway. Pedestrian LOS will improve in the future and meet targets along Carling Avenue with transit priority lanes which will decrease the average daily curb lane volume, and along Archibald Street due to the provision of a 1.8-metre-wide sidewalk along the site frontage.

Bicycle LOS was limited on the Carling Avenue by the number of travel lanes. If the Carling Avenue cross-section were to include physically separated facilities, the segment would score a LOS of A. The appropriateness of this treatment is dependent on the existence of a greater plan for cycling along Carling Avenue.

Overall, no additional recommended improvements along the boundary streets are proposed as part of this site plan outside of the 1.8-metre-wide sidewalk to be provided on Archibald Street. The City can investigate the upgrade of cycling facilities along Carling Avenue, but this treatment is beyond the scope of this project.

11 Access Intersections Design

11.1 Location and Design of Access

The site will access Archibald Street via a single full-movement access at the approximate location of one of the existing site accesses.

11.2 Access Intersection Control

Based upon the projected volumes, the site access will have stop-control on the minor approach. No further traffic control is necessary to address operation issues.

11.3 Access Intersection Design

11.3.1 2023 Future Total Access Conditions

The 2023 future total future traffic volumes have been illustrated in Figure 14 and the access intersection operations are summarized in Table 18. The level of service for unsignalized intersections is based HCM average delay. The synchro worksheets have been provided in Appendix I.

Figure 14: 2023 Future Total Traffic Volumes

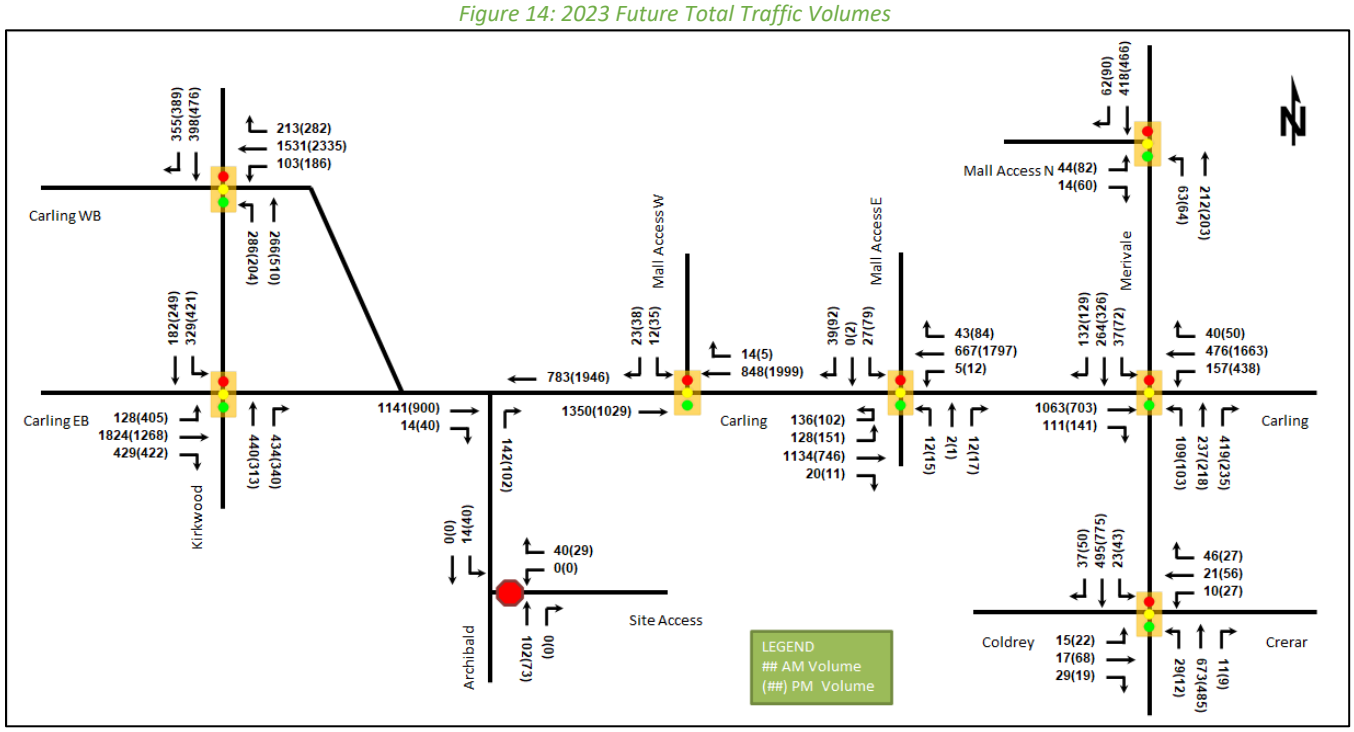


Table 18: 2023 Future Total Access Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Archibald Street & Site Access *Unsignalized*	WBL/R	A	0.04	8.9	0.8	A	0.03	8.8	0.8
	NBT/R	-	-	-	-	-	-	-	-
	SBL/T	A	0.01	7.4	0.0	A	0.03	7.4	0.8
	Overall	**A**	**-**	**2.9**	**-**	**A**	**-**	**3.9**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00

The 2023 future total access intersection operates satisfactorily. No mitigation is required.

11.3.2 2028 Future Total Access Conditions

The 2028 future total future traffic volumes have been illustrated in Figure 15 and the access intersection operations are summarized in Table 19. The level of service for unsignalized intersections is based on HCM average delay. The synchro worksheets have been provided in Appendix J.

Figure 15: 2028 Future Total Traffic Volumes

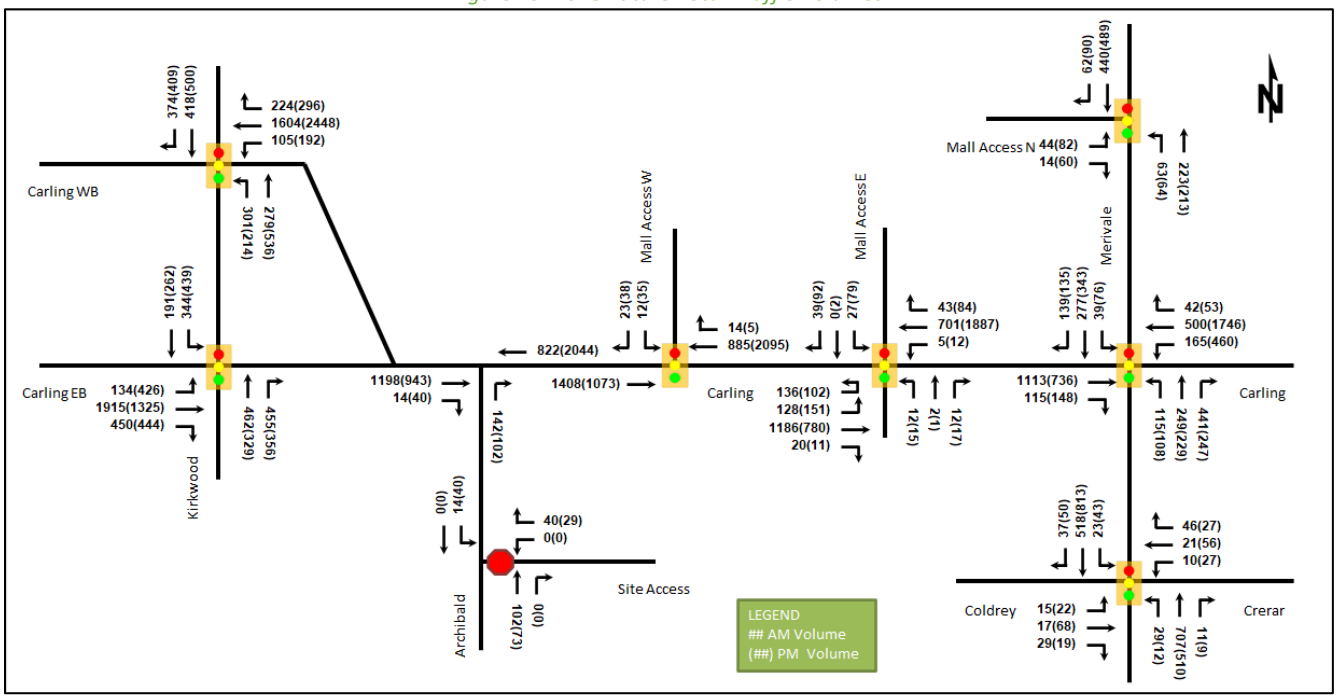


Table 19: 2028 Future Total Access Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Archibald Street & Site Access *Unsignalized*	WBL/R	A	0.04	8.9	0.8	A	0.03	8.8	0.8
	NBT/R	-	-	-	-	-	-	-	-
	SBL/T	A	0.01	7.4	0.0	A	0.03	7.4	0.8
	Overall	**A**	**-**	**2.9**	**-**	**A**	**-**	**3.9**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00

The 2028 future total access intersection operates satisfactorily. No mitigation is required.

11.3.3 Access Intersection MMLOS

The access intersection is unsignalized, and therefore no access intersection MMLOS analysis has been conducted.

11.3.4 Recommended Design Elements

No access intersection design elements are proposed as part of this study beyond the typical private approach standards along Archibald Street.

12 Transportation Demand Management

12.1 Context for TDM

The mode shares used within the TIA represent the targets partly derived through site context, and party through limitation of site vehicle parking facilities in concert with the provision of additional on-site bicycle parking.

The site is located across the street from a major commercial centre which is currently in the process of phased redevelopment. Already home to the Westgate Mall, as this site is built-out, additional site-generated trips will be attracted by this development, thereby reducing the need for inter-zone trips, reducing in turn the auto mode share.

On-site tenant vehicle parking is proposed at a rate of 0.2 spaces per unit. This value is lower than the prescribed 0.5 spaces per unit from the zoning by-law. Selling or renting units with buyer/tenant fore-knowledge of the low availability of parking will select for buyers/tenants who are willing or seeking to choose alternative modes to auto. Furthermore, the development will be providing nearly 0.9 bicycle parking spaces per unit, which exceeds the 0.5 spaces per unit from the zoning by-law, which will enable more tenants to choose cycling as a mode. Given these considerations, it is likely that the proposed mode share will be reached.

The site is not in a TOD area, two site-adjacent bus routes connect to Line 2 O-Train, approximately 2.5 km east of the site on Carling Avenue. Furthermore, Carling Avenue is identified as a future continuous lanes transit priority corridor, from the TMP stating, "Exclusive bus lanes and transit signal priority between Lincoln Fields Station and Carling O-Train Station. Bus lanes to be provided through conversion of existing traffic lanes. Note that some transit signal priority already exists along the corridor". As this treatment is scheduled for completion by the time of build-out, the transit mode share, based upon this level of transit access, could be seen as conservative.

Out of 175 residential units, 40 are proposed as studio, 53 as one-bedroom, and 82 are proposed as two-bedroom, for a total of 257 bedrooms, and no age restrictions are noted. The commercial tenants are not yet identified and travel or demographic considerations for this component cannot be determined at this time.

12.2 Need and Opportunity

The subject site has been assumed to rely equally on transit as on auto. As mentioned above, limited room exists for auto share to increase based upon the limitation of tenant parking.

12.3 TDM Program

The "suite of post occupancy TDM measures" has been summarized in the TDM checklists for both the residential and non-residential land uses. The checklist is provided in Appendix K.

The key TDM measures recommended include:

- Provide bike repair station for site and public use
- Posting of pedestrian, cycling, and transit information and maps at primary entrances/exits
- Inclusion of a 1-month Presto card for first time new residential and retail tenants, along with a set time frame for this offer (e.g. 6-months) from the 'opening' of the building/tower
- Contract with provider to install on-site bikeshare station
- Contract with provider to install on-site carshare vehicles and promote their use by residents
- Unbundle parking from rental costs

13 Transit

13.1 Route Capacity

The proposed development is anticipated to generate an additional 54 AM peak hour transit trips and 69 PM peak hour transit trips. Of these trips, 40 outbound AM trips and 40 inbound PM trips are anticipated. From the trip distribution found in section 5.2, these values can be further broken down.

Site-generated outbound AM and PM peak hour trips break down to four trips north, 16 trips south, 14 trips east, and six trips west. As each of the four study area routes provides 15-minute service, during the peak hours, the resultant transit trips generated from the proposed development would be marginal and would require, at most, the substitution of a single higher capacity bus for a lower capacity bus per peak hour in the peak directions.

13.2 Transit Priority

Transit priority is planned for the Carling Avenue corridor, and the proposed development would not impact the operations of the planned improvements.

14 Network Intersection Design

14.1 Network Intersection Control

The network intersections include all existing study area intersections, which are all signalized except for Carling Avenue at Archibald Street.

14.2 Network Intersection Design

14.2.1 2023 Future Total Network Conditions

The 2023 future total traffic volumes have been illustrated in Figure 14 and the intersection operations are summarized in Table 20. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. U-turn movements have been included in left-turning volumes within the volume figures and have been modelled as separate movements within Synchro™. The synchro worksheets have been provided in Appendix I.

Table 20: 2023 Future Total Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Carling Avenue (westbound) & Kirkwood Avenue *Signalized*	WBL	A	0.07	19.3	12.5	A	0.12	15.8	17.6
	WBT/R	C	0.80	31.4	153.7	**F**	**1.11**	**84.0**	**#284.9**
	NBL	C	0.71	25.2	m81.0	B	0.66	32.0	57.5
	NBT	A	0.35	15.2	m74.8	C	0.75	41.2	159.5
	SBT	A	0.52	41.9	56.2	B	0.63	46.2	71.6
	SBR	D	0.90	59.5	**#108.5**	E	1.00	**82.9**	**#139.9**
	Overall	**D**	**0.81**	**33.6**	-	**F**	**1.06**	**69.5**	-
Merivale Road & Westgate SC *Signalized*	EBL	A	0.14	19.8	9.5	A	0.29	24.9	16.9
	EBR	A	0.05	9.6	3.3	A	0.19	8.0	7.3
	NBL	A	0.09	1.4	1.5	A	0.11	4.4	19.6
	NBT	A	0.16	1.4	3.8	A	0.16	5.0	64.5
	SBT	A	0.32	6.3	46.6	A	0.38	7.0	52.4
	SBR	A	0.06	2.3	4.4	A	0.09	1.9	5.0
	Overall	**A**	**0.33**	**5.1**	-	**A**	**0.39**	**7.5**	-
Carling Avenue (eastbound) & Kirkwood Avenue *Signalized*	EBL	A	0.19	22.1	33.7	A	0.56	28.2	105.8
	EBT	E	0.95	44.2	**#195.5**	B	0.64	26.9	106.0
	EBR	A	0.51	4.3	18.3	A	0.49	4.0	17.3
	NBT	A	0.48	38.9	62.3	A	0.47	45.7	49.3
	NBR	**F**	**1.07**	**106.1**	**#177.8**	**F**	**1.17**	**150.7**	**#154.6**
	SBL	C	0.75	42.3	105.6	D	0.84	29.4	**#119.1**
	SBT	A	0.22	25.6	63.4	A	0.32	8.0	14.7
	Overall	**E**	**0.96**	**44.4**	-	**D**	**0.82**	**37.2**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Carling Avenue & Archibald Street *Unsignalized*	EBT/R	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-
	NBR	C	0.32	17.0	10.5	B	0.18	12.9	5.3
	Overall	**A**	**-**	**1.9**	**-**	**A**	**-**	**1.3**	**-**
Carling Avenue & Westgate SC (west) *Signalized*	EBT	A	0.54	6.3	m63.0	A	0.40	8.2	75.7
	WBT	A	0.34	3.8	6.1	C	0.79	15.4	m102.9
	WBR	A	0.01	1.7	m0.2	A	0.00	6.6	m0.2
	SBL/R	A	0.11	18.0	10.1	A	0.26	35.0	24.6
	Overall	**A**	**0.46**	**5.5**	**-**	**B**	**0.70**	**13.5**	**-**
Carling Avenue & Westgate SC (east) *Signalized*	EBL/U	A	0.48	5.6	10.4	E	0.94	**135.2**	**#95.3**
	EBT	A	0.42	1.8	13.9	A	0.31	2.4	8.1
	EBR	A	0.02	0.1	m0.0	A	0.01	0.0	m0.0
	WBL/U	A	0.02	5.2	m0.9	A	0.04	4.8	m0.8
	WBT	A	0.25	4.2	26.7	E	0.97	67.6	**m#321.8**
	WBR	A	0.04	2.4	m1.6	A	0.11	1.0	m1.9
	NB	A	0.15	30.2	9.8	A	0.13	25.0	12.0
	SBL/T	A	0.18	47.3	12.6	A	0.39	50.6	32.2
	SBR	A	0.19	14.3	8.6	A	0.29	10.7	13.7
	Overall	**A**	**0.46**	**4.1**	**-**	**D**	**0.85**	**52.6**	**-**
Carling Avenue & Merivale Road *Signalized*	EBT	D	0.83	30.7	**#160.3**	D	0.83	59.3	**#121.7**
	EBR	A	0.18	1.6	3.1	A	0.31	8.1	23.1
	WBL	B	0.68	38.1	**#66.6**	E	0.93	61.1	**#168.4**
	WBT	A	0.27	17.3	49.2	E	0.93	**84.6**	**#275.8**
	WBR	A	0.05	0.1	0.0	A	0.06	1.1	2.0
	NBL	B	0.64	68.6	43.1	B	0.68	78.5	44.7
	NBT	A	0.48	39.4	69.4	A	0.50	46.4	73.2
	NBR	B	0.68	17.0	59.8	A	0.44	7.5	20.4
	SBL	A	0.33	57.4	0.0	A	0.53	65.1	33.4
	SBT	C	0.74	51.3	57.8	D	0.85	79.3	**#106.3**
	SBR	A	0.33	10.0	17.4	A	0.32	13.8	22.6
	Overall	**C**	**0.77**	**28.9**	**-**	**E**	**0.92**	**64.4**	**-**
Merivale Road & Coldrey Avenue/Crerar Avenue *Signalized*	EB	A	0.25	20.3	12.9	A	0.44	31.7	25.1
	WB	A	0.30	17.4	13.9	A	0.45	30.3	24.5
	NB	A	0.31	4.9	35.2	A	0.22	4.5	23.5
	SB	A	0.24	4.4	25.8	A	0.39	5.5	45.1
	Overall	**A**	**0.30**	**6.0**	**-**	**A**	**0.41**	**8.7**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

The 2023 future total intersection operations are similar to the 2023 future background conditions. No mitigation for site-generated traffic is recommended.

14.2.2 2028 Future Total Network Conditions

The 2028 future total traffic volumes have been illustrated in Figure 14 and the intersection operations are summarized in Table 21. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. U-turn movements have been included in left-turning volumes within the volume

figures and have been modelled as separate movements within Synchro™. The synchro worksheets have been provided in Appendix J.

Table 21: 2028 Future Total Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Carling Avenue (westbound) & Kirkwood Avenue *Signalized*	WBL	A	0.07	15.5	8.7	A	0.12	15.9	18.1
	WBT/R	D	0.86	30.1	167.8	**F**	**1.16**	**106.2**	**#307.5**
	NBL	C	0.74	26.6	m84.5	C	0.71	34.4	**#61.4**
	NBT	A	0.36	15.0	m78.2	C	0.78	45.1	168.5
	SBT	A	0.52	41.3	59.0	B	0.66	47.2	75.3
	SBR	E	0.92	62.0	**#118.5**	**F**	**1.06**	**97.3**	**#150.9**
	Overall	**D**	**0.86**	**33.1**	-	**F**	**1.11**	**84.7**	-
Merivale Road & Westgate SC *Signalized*	EBL	A	0.14	19.8	9.5	A	0.29	24.9	16.9
	EBR	A	0.05	9.6	3.3	A	0.19	8.0	7.3
	NBL	A	0.09	1.4	1.6	A	0.11	4.2	18.5
	NBT	A	0.17	1.3	4.1	A	0.17	4.8	67.5
	SBT	A	0.33	6.4	49.8	A	0.39	7.2	56.0
	SBR	A	0.06	2.3	4.4	A	0.09	1.9	5.0
	Overall	**A**	**0.35**	**5.2**	-	**A**	**0.40**	**7.5**	-
Carling Avenue (eastbound) & Kirkwood Avenue *Signalized*	EBL	A	0.20	22.3	35.1	A	0.59	29.2	112.9
	EBL/T	E	0.99	52.8	**#212.7**	B	0.67	27.6	112.5
	EBR	A	0.52	4.4	18.9	A	0.52	5.4	27.1
	NBT	A	0.51	39.6	65.4	A	0.51	46.5	51.7
	NBR	**F**	**1.13**	**126.3**	**#188.6**	**F**	**1.25**	**178.8**	**#163.5**
	SBL	C	0.79	45.4	**#113.7**	D	0.89	31.9	**#117.7**
	SBT	A	0.24	25.5	64.7	A	0.34	8.0	16.2
	Overall	**F**	**1.01**	**51.3**	-	**D**	**0.86**	**40.9**	-
Carling Avenue & Archibald Street *Unsignalized*	EBT/R	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-
	NBR	C	0.34	17.7	11.3	B	0.19	13.3	5.3
	Overall	**A**	**-**	**2.9**	-	**A**	**-**	**3.9**	-
Carling Avenue & Westgate SC (west) *Signalized*	EBT	A	0.57	6.5	m62.5	A	0.42	8.4	80.3
	WBT	A	0.36	3.8	6.3	D	0.82	17.2	m103.1
	WBR	A	0.01	1.9	m0.2	A	0.00	6.6	m0.2
	SBL/R	A	0.11	18.0	10.1	A	0.26	36.3	25.1
	Overall	**A**	**0.48**	**5.6**	-	**C**	**0.74**	**14.7**	-
Carling Avenue & Westgate SC (east) *Signalized*	EBL/U	A	0.50	6.4	13.5	E	0.94	**136.3**	**#95.5**
	EBT	A	0.44	1.8	14.2	A	0.32	2.5	8.3
	EBR	A	0.02	0.1	m0.0	A	0.01	0.0	m0.0
	WBL/U	A	0.02	5.2	m1.1	A	0.04	4.9	m0.9
	WBT	A	0.26	4.2	28.0	**F**	**1.02**	**67.0**	**m#319.6**
	WBR	A	0.04	2.4	m1.6	A	0.11	0.9	m1.7
	NB	A	0.15	30.2	9.8	A	0.13	25.0	12.0
	SBL/T	A	0.18	47.3	12.6	A	0.39	50.6	32.2
	SBR	A	0.19	14.3	8.6	A	0.31	17.1	18.7
	Overall	**A**	**0.48**	**4.1**	-	**D**	**0.88**	**52.4**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Carling Avenue & Merivale Road *Signalized*	EBT	E	0.90	40.5	#174.5	E	0.90	81.7	#131.4
	EBR	A	0.19	2.1	4.7	A	0.33	8.6	23.2
	WBL	B	0.68	39.6	#73.2	E	0.99	76.6	#186.3
	WBT	A	0.29	17.9	52.0	E	0.99	89.3	#299.1
	WBR	A	0.05	0.1	0.0	A	0.07	1.3	2.5
	NBL	B	0.66	69.9	45.3	C	0.70	79.8	#48.2
	NBT	A	0.50	39.4	72.9	A	0.51	46.6	77.1
	NBR	C	0.71	19.6	69.6	A	0.45	7.5	21.0
	SBL	A	0.34	57.6	0.0	A	0.55	65.8	34.7
	SBT	C	0.76	52.2	59.9	D	0.88	86.6	#120.9
	SBR	A	0.34	10.1	18.3	A	0.33	14.4	25.1
	Overall	**D**	**0.81**	**33.0**	-	**E**	**0.97**	**72.5**	-
Merivale Road & Coldrey Avenue/Crerar Avenue *Signalized*	EB	A	0.25	20.3	12.9	A	0.44	31.7	25.1
	WB	A	0.30	17.4	13.9	A	0.45	30.3	24.5
	NB	A	0.32	4.9	37.3	A	0.23	4.6	24.8
	SB	A	0.25	4.5	27.0	A	0.40	5.7	48.0
	Overall	**A**	**0.32**	**6.1**	-	**A**	**0.43**	**8.7**	-

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

The 2028 future total intersection operations are similar to the 2028 future background conditions, with the AM peak hour overall HCM 2000 v/c of the intersection of Carling Avenue (eastbound) & Kirkwood Avenue moving from 1.00 to 1.01 across these horizons. No mitigation is recommended.

14.2.3 Sensitivity Analysis

14.2.3.1 Carling Avenue and Westgate SC (east) Protected Eastbound Left-Turn

The City recommended the investigation of a fully protected eastbound left turn at the intersection of Carling Avenue and Westgate SC (east), and this scenario was tested on the future total 2028 horizon and the intersection operations are summarized in Table 22. The Synchro worksheets have been provided in Appendix L.

Table 22: Carling Avenue & Westgate SC (east) 2028 Future Total Intersection Operations Mitigation

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Carling Avenue & Westgate SC (east) (Existing Timing Plan) *Signalized*	EBL/U	A	0.50	6.4	13.5	E	0.94	136.3	#95.5
	EBT	A	0.44	1.8	14.2	A	0.32	2.5	8.3
	EBR	A	0.02	0.1	m0.0	A	0.01	0.0	m0.0
	WBL/U	A	0.02	5.2	m1.1	A	0.04	4.9	m0.9
	WBT	A	0.26	4.2	28.0	F	1.02	67.0	m#319.6
	WBR	A	0.04	2.4	m1.6	A	0.11	0.9	m1.7
	NB	A	0.15	30.2	9.8	A	0.13	25.0	12.0
	SBL/T	A	0.18	47.3	12.6	A	0.39	50.6	32.2
	SBR	A	0.19	14.3	8.6	A	0.31	17.1	18.7
	Overall	**A**	**0.48**	**4.1**	-	**D**	**0.88**	**52.4**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Carling Avenue & Westgate SC (east) (Fully Protected EBL Plan) ***Signalized***	EBL/U	C	0.79	54.8	**#118.9**	D	0.87	**137.7**	**#121.5**
	EBT	A	0.44	8.4	81.2	A	0.32	2.5	8.3
	EBR	A	0.02	3.6	m0.9	A	0.01	0.0	m0.0
	WBL/U	A	0.03	13.7	m1.8	A	0.05	5.0	m0.9
	WBT	A	0.37	13.2	45.6	**F**	**1.11**	**73.2**	**#m319.6**
	WBR	A	0.05	0.7	m0.9	A	0.12	1.0	m1.7
	NB	A	0.15	30.2	9.8	A	0.13	25.0	12.0
	SBL/T	A	0.18	47.3	12.6	A	0.39	50.6	32.3
	SBR	A	0.17	4.7	3.8	A	0.31	17.3	18.9
	Overall	**A**	**0.51**	**15.6**	**-**	**E**	**0.92**	**56.1**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

During both peak hours, the fully protected eastbound left-turn may produce queues that substantially exceed the storage length on this movement. During the PM peak hour, the change also sees a decrease in v/c on the eastbound left at the expense of an increase in v/c for the already over-capacity westbound through movement. This effect is a result of the additional time required for the fully protected eastbound left-turn. No significant collisions were noted at this intersection, suggesting the current signal operations, and current u-turns, do not pose a safety risk.

Further to this analysis, the TIA for 1354 Carling Avenue recommended that the AM peak hour timing plan incorporate a protected/permitted eastbound left-turn phase, which as of the signal timing plan provided, dated February 12, 2020, has not been implemented.

14.2.3.2 Additional Pedestrian Volumes

In addition to the above investigation, the City wished that increasing pedestrian volume increases be accounted for. As such, additional pedestrian crossings estimated to be generated at the site were added at the adjacent intersection of Westgate SC W, which also provides the straightest path to transit from the site, constituting a sensitivity analysis. An additional 30 pedestrian crossings were added to the highest volume crossing side of this intersection during the AM peak hour and the PM peak hour, as a conservative scenario assuming all outbound AM and inbound PM walk trips generated cross Carling Avenue and that all outbound AM and inbound PM northbound, southbound, and westbound transit trips crossed Carling Avenue. The results of this analysis are summarized in Table 23 and the Synchro worksheets are provided in Appendix M.

Table 23: Carling Avenue & Westgate SC (west) 2028 Future Total Intersection Operations Pedestrian Sensitivity

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Carling Avenue & Westgate SC (west) (Baseline) ***Signalized***	EBT	A	0.57	6.5	m62.5	A	0.42	8.4	80.3
	WBT	A	0.36	3.8	6.3	D	0.82	17.2	m103.1
	WBR	A	0.01	1.9	m0.2	A	0.00	6.6	m0.2
	SBL/R	A	0.11	18.0	10.1	A	0.26	36.3	25.1
	Overall	**A**	**0.48**	**5.6**	**-**	**C**	**0.74**	**14.7**	**-**
Carling Avenue & Westgate SC (west) (w/ Pedestrians) ***Signalized***	EBT	A	0.60	7.6	m62.5	A	0.46	10.3	80.3
	WBT	A	0.38	4.8	6.3	D	0.90	20.3	m104.4
	WBR	A	0.01	1.9	m0.2	A	0.01	6.6	m0.2
	SBL/R	A	0.10	17.9	10.1	A	0.22	33.9	25.1
	Overall	**A**	**0.48**	**6.7**	**-**	**C**	**0.74**	**17.3**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue

The effects of additional pedestrian actuations and vehicle conflicts on the North-South crossing are not significant enough on the future total 2028 horizon to be of concern given the existing capacity of the affected movements at the intersection. The pedestrian impacts will significantly reduce beyond this intersection, as they disperse through various formal/informal connections and destinations.

14.2.4 Network Intersection MMLOS

Table 24 summarizes the MMLOS analysis for the signalized network intersections. Where changes are planned, existing and future conditions are considered in separate rows. The analysis is based on the policy area of General Urban Area for the intersection of Merivale and Westgate Shopping Centre, Arterial Mainstreet for the Carling Avenue intersections with the exception of Carling Avenue (eastbound) and Kirkwood Avenue, which is within 300 metres of both Machon Sarah High School and St. Elizabeth School, and additionally for the policy area of Within 300m of a school for the intersection of Merivale Road and Coldrey Avenue/Crerar Avenue which is captured by WE Gowling Public School. The latter intersection would otherwise be subject to Traditional Mainstreet targets. The MMLOS worksheets has been provided in Appendix H.

Table 24: Study Area Intersection MMLOS Analysis

Intersection	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS		Auto LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target	ALOS	Target
Carling Avenue (westbound) & Kirkwood Avenue (Existing)	F	C	F	C	F	D	D	D	E	D
Carling Avenue (westbound) & Kirkwood Avenue (Future)	F	C	E	C	F	D	D	D	E	D
Merivale Road & Westgate SC	B	C	D	C	B	D	N/A	D	A	D
Carling Avenue (eastbound) & Kirkwood Avenue	D	A	F	C	E	D	D	D	C	E
Carling Avenue & Westgate SC (west) (Existing)	E	C	F	C	D	D	N/A	D	A	D
Carling Avenue & Westgate SC (west) (Future)	E	C	F	C	B	D	N/A	D	A	D
Carling Avenue & Westgate SC (east) (Existing)	F	C	F	C	F	D	N/A	D	C	D
Carling Avenue & Westgate SC (east) (Future)	F	C	F	C	F	D	N/A	D	C	D
Carling Avenue & Merivale Road (Existing)	F	C	F	C	F	D	F	D	C	D
Carling Avenue & Merivale Road (Future)	F	C	F	C	F	D	F	D	C	D

Intersection	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS		Auto LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target	ALOS	Target
Merivale Road and Coldrey Avenue/Crerar Avenue	**D**	A	**F**	C	**E**	D	**F**	D	A	E

The MMLOS targets for the pedestrian and bicycle LOS will not generally be met at the signalized network intersections. Typical with arterial roads, the pedestrian level of service is very limited due to the geometry of the roadways. Mixed flow conditions, vehicle speeds and left-turn configurations limit the bicycle level of service on the network intersections. The transit level of service is restricted by the delay at the signals and needs a reduction to 30 seconds or below to achieve the targets. Truck level of service is limited often by non-truck route minor legs of intersections.

While the following treatments would not achieve targets, the City could explore the conversion of the channelized right-turns to smart channels and provide improved crossing markings, such as zebra crossing markings, to improve the pedestrian environment at the area intersections.

For the City to achieve the bicycle LOS, physically separated cycling facilities on all arterials as well as on Coldrey Avenue and Crerar Avenue, and bike lanes elsewhere at all currently mixed-traffic approaches should be considered. In addition, the left-turn often governs the BLOS results and two-stage left-turn boxes should be considered where possible.

It is unlikely that the transit LOS will be achieved in the area due to the intersection delays along Carling Avenue.

14.2.5 Design Elements

No access intersection design elements are proposed as part of this study for the network intersections.

15 Summary of Improvements Indicated and Modification Options

The following summarizes the analysis and results presented in this TIA report:

Proposed Site and Screening

- The proposed site includes 175 apartment units and approximately 792 m^2 of ground floor commercial/retail space and is located across from Westgate Mall
- The site access Carling avenue via a full-movement access onto Archibald Street
- The development is proposed to be completed as a single phase by 2023
- The Trip Generation, Location, and Safety triggers were all met through the TIA Screening
- The application for the proposed site is for both a Zoning By-Law Amendment and a Site Plan Application

Existing Conditions

- Carling Avenue (arterial), Kirkwood Avenue (arterial), and Merivale Road (arterial) are the major study area roadways
- The study area roads have sidewalks on both sides of the arterials
- Bike lanes are provided on Carling Avenue and on Merivale Road north of Carling Avenue–both roads are spine routes–and Kirkwood Avenue is a local route
- The existing transit routes #55, 80, 81, 85 service the site
- The Carling Avenue (westbound) and Kirkwood intersection is noted to have capacity issues during the PM peak hour

- The Carling Avenue (eastbound) and Kirkwood intersection and the Carling Avenue and Merivale Road intersection are noted to have capacity issues on each an individual movement during peak hours
- No other operational issues are noted for the study area intersections

Development Generated Travel Demand

- The proposed development is forecasted to generate 124 people two-way trips during the AM peak and 161 people two-way trips during the PM peak
- Based on the proposed site-specific mode shares with 40% auto, a total of 54 two-way vehicle trips will be generated during the AM peak and 69 two-way vehicle trips during the PM peak
- The distribution of the site trips is estimated to be 10% to the north, 40% to the south, 35% to the east, and 15% to the west

Background Conditions

- Adjacent developments that have either been completed or are under construction have been accounted for in the existing and background conditions
- Growth on the study area transportation network is applied as 1% along mainline arterial volumes and the turning movements between arterials
- The future background intersection operations are impacted by the outside travel lanes along Carling Avenue being converted to bus lanes
- A corridor study should be conducted to determine and minimize auto impacts from transit priority

Development Design

- The site provides hard surface connections to the surrounding pedestrian facilities
- The Archibald access provides access to emergency vehicles and trucks, no issues are noted for the access or garbage pickup

Parking

- The site provides 39 vehicle parking spaces for tenants, 16 for visitors, and 8 spaces for commercial, with the tenant spaces being below the by-law-prescribed value by 43 spaces
- 110 bicycle parking spaces are provided, above the by-law-prescribed value of 88
- Vehicle parking is provided underground for the residential component, and on a surface lot for the commercial component

Boundary Street Design

- The proposed site's boundary streets are Carling Avenue and Archibald Street
- Pedestrian LOS improves in future conditions, Carling Avenue bicycle LOS remains limited by the number of travel lanes
- No recommended improvements are proposed for the boundary streets as part of this study beyond the 1.8 metre sidewalk included in the site plan

Access Intersection Design

- The future total access intersection operations are satisfactory, and no mitigation is recommended
- The proposed site access is a private approach with a stop-control

TDM

- Mode shares used in analysis are representative of the tenant parking provision rate and the site's commercial-adjacent context
- Carling Avenue is identified as a future continuous lanes transit priority corridor, and this treatment is anticipated to be realized by site build-out
- Additional supportive TDM measures include:
    - Provide bike repair station for site and public use
    - Posting of pedestrian, cycling, and transit information and maps at primary entrances/exits
    - Inclusion of a 1-month Presto card for first time new residential and retail tenants, along with a set time frame for this offer (e.g. 6-months) from the 'opening' of the building/tower
    - Contract with provider to install on-site bikeshare station
    - Contract with provider to install on-site carshare vehicles and promote their use by residents
    - Unbundle parking from rental costs

Transit

- The forecasted transit trips will include 54 two-way trips during the AM peak and 69 two-way trips during the PM peak
- The forecasted trips will represent a ridership increase of up to five additional trips per bus per route
- Transit priority measures are planned

Network Intersection Design

- The future total intersection operations are similar to the background intersection operations
- No improvements for the study area intersection are required to support the proposed development
- The MMLOS targets for pedestrians, bicycles and transit cannot be met due to the nature of arterial roadways at all signalized network intersections
- Improvements by the City to address existing pedestrian crossing types, pocket bike lanes, two-stage left-turn boxes could be explored
- The conversion of the Carling Avenue and Westgate SC (east) eastbound left-turn movement into a fully protected movement was examined, found to have impacts on that movement's queuing and the conflicting westbound through's v/c, especially in the PM peak hour
- The protected/permissive timing recommended in the TIA for 1354 Carling Avenue could be considered for implementation by the City
- Increases from site-generated pedestrian volumes are not expected to unduly affect intersection operations

16 Conclusion

It is recommended that, from a transportation perspective, the proposed development applications proceed.

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Appendix A

TIA Screening Form and PM Certification Form

13 Markham Avenue
Ottawa ON K2G 3Z1

City of Ottawa 2017 TIA Guidelines
Step 1 - Screening Form

Date: 14-Apr-20
Project Number: 2019-62
Project Reference: Kevlar 1330 Carling, 815 Archibald

1.1 Description of Proposed Development	
Municipal Address	1330 Carling Avenue & 815 Archibald Street
Description of Location	PLAN 221 PT BLK 8 PLAN 529;LOT 8 PT LOT 7 RP 4R15037;PART 1
Land Use Classification	Arterial Mainstreet - AM10
Development Size	175 apartment units, 792 sq. m ground floor retail
Accesses	One access Archibald
Phase of Development	Single Phase
Buildout Year	2024
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Townhomes or apartments	
Development Size	175	Units
Trip Generation Trigger	Yes	

1.3 Location Triggers		
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	Yes	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?	Yes	Carling Arterial Mainstreet
Location Trigger	Yes	

1.4. Safety Triggers	
Are posted speed limits on a boundary street 80 km/hr or greater?	No
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	Yes
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	Yes
Is the proposed driveway within auxiliary lanes of an intersection?	No
Does the proposed driveway make use of an existing median break that serves an existing site?	No
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	Yes
Does the development include a drive-thru facility?	No
Safety Trigger	Yes

TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering √ or transportation planning □.

[1,2] License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

City Of Ottawa
Infrastructure Services and Community Sustainability
Planning and Growth Management
110 Laurier Avenue West, 4th fl.
Ottawa, ON K1P 1J1
Tel. : 613-580-2424
Fax: 613-560-6006

Ville d'Ottawa
Services d 'infrastructure et Viabilité des collectivités
Urbanisme et Gestion de la croissance
110, avenue Laurier Ouest
Ottawa (Ontario) K1P 1J1
Tél. : 613-580-2424
Télécopieur: 613-560-6006

Dated at ___Ottawa_____ this __20__ day of _____September_____, 2018.
(City)

Name: _____Andrew Harte_____
(Please Print)

Professional Title: _____Professional Engineer_____

_____
Signature of Individual certifier that s/he meets the above four criteria

Office Contact Information (Please Print)
Address: 13 Markham Avenue
City / Postal Code: Ottawa / K2G 3Z1
Telephone / Extension: (613) 697-3797
E-Mail Address: Andrew.Harte@CGHTransportation.com

Appendix B

Turning Movement Counts

Turning Movement Count
Bicycle Summary
Flow Diagram

Archibald Street & Carling Avenue — **Ottawa, ON**

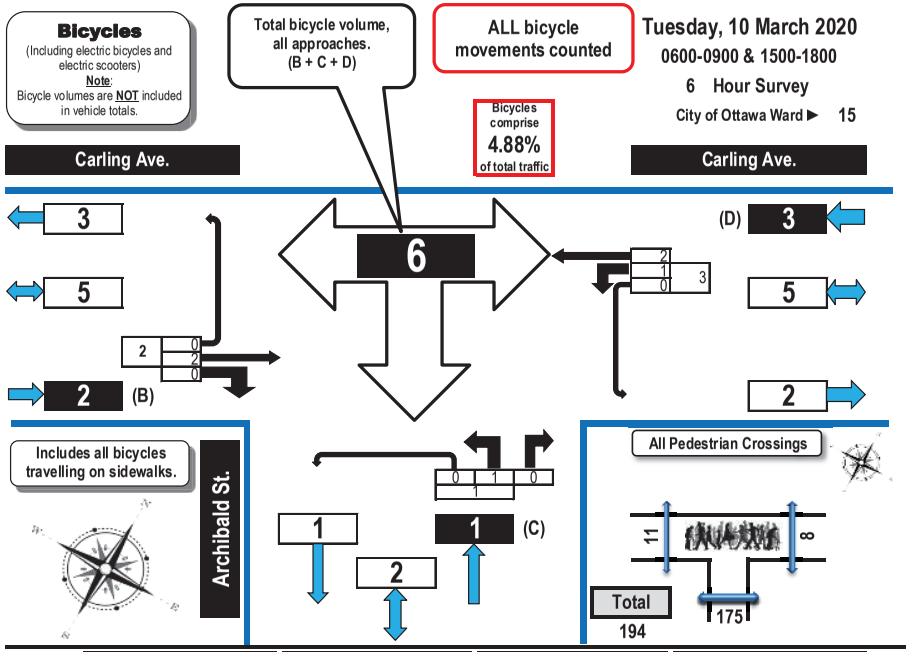
Bicycles
(Including electric bicycles and electric scooters)
Note: Bicycle volumes are NOT included in vehicle totals.

Total bicycle volume, all approaches. (B + C + D)

ALL bicycle movements counted

Bicycles comprise 4.88% of total traffic

Tuesday, 10 March 2020
0600-0900 & 1500-1800
6 Hour Survey
City of Ottawa Ward ► 15



Time Period	Carling Ave. Eastbound LT	ST	RT	UT	S. Tot	Carling Ave. Westbound LT	ST	RT	UT	S. Tot	Archibald St. Northbound LT	ST	RT	UT	S. Tot	N/A Southbound LT	ST	RT	UT	S. Tot	G.Tot.
0600-0700		0	0	0	0	0	0		0	0	0		0	0	0						0
0700-0800		2	0	0	2	0	2		0	2	0		0	0	0						4
0800-0900		0	0	0	0	0	0		0	0	0		0	0	0						0
1500-1600		0	0	0	0	0	0		0	0	0		0	0	0						0
1600-1700		0	0	0	0	0	0		0	0	0		0	0	0						0
1700-1800		0	0	0	0	1	0		0	1	1		0	0	1						2
Totals		2	0	0	2	1	2		0	3	1		0	0	1						6

ALL bicycle movements counted

Turning Movement Count
Summary, AM and PM Peak Hour
Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

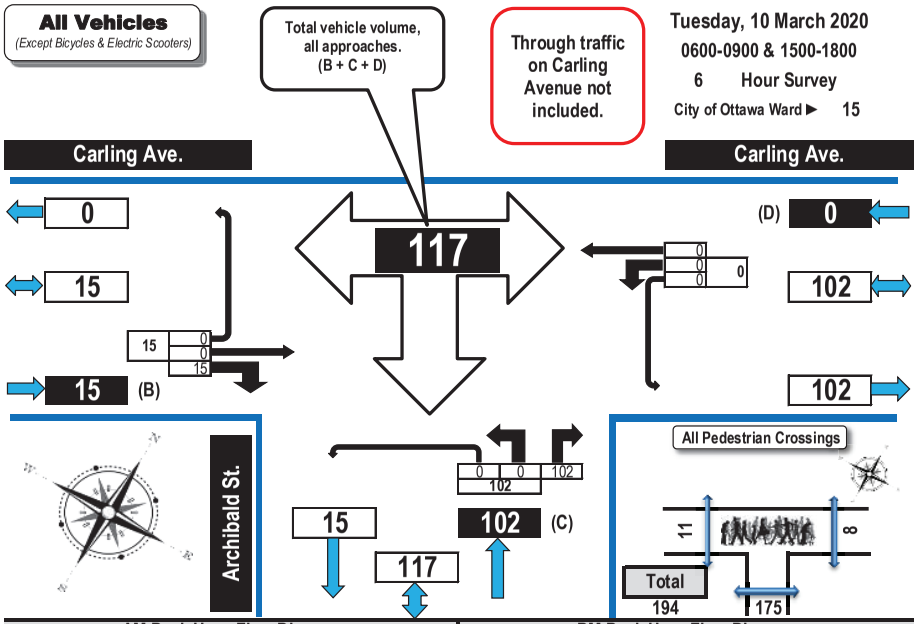
Archibald Street & Carling Avenue — **Ottawa, ON**

All Vehicles
(Except Bicycles & Electric Scooters)

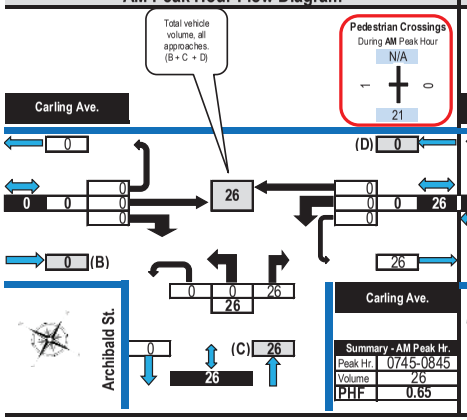
Total vehicle volume, all approaches. (B + C + D)

Through traffic on Carling Avenue not included.

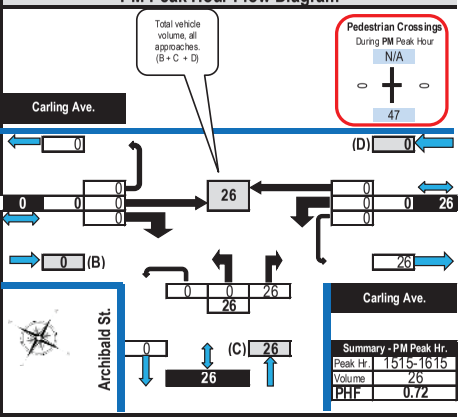
Tuesday, 10 March 2020
0600-0900 & 1500-1800
6 Hour Survey
City of Ottawa Ward ► 15



AM Peak Hour Flow Diagram



PM Peak Hour Flow Diagram



Turning Movement Count
Heavy Vehicle Summary
Flow Diagram

Archibald Street & Carling Avenue — **Ottawa, ON**

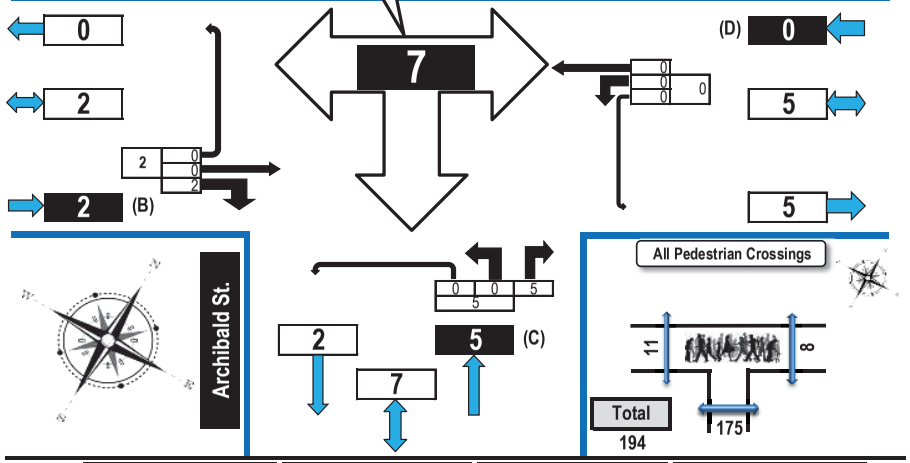
Heavy Vehicles
(Construction Vehicles, Heavy Trucks, Buses & School Buses).
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

Total heavy vehicle volume, all approaches. (B + C + D)

Through traffic on Carling Avenue not included.

Heavy Vehicles Comprise **5.98%** of Total Traffic

Tuesday, 10 March 2020
0600-0900 & 1500-1800
6 Hour Survey
City of Ottawa Ward ► 15



	Carling Ave. Eastbound					Carling Ave. Westbound					Archibald St. Northbound					N/A Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0600-0700		0	1	0	1	0	0		0	0	0		0	0	0						1
0700-0800		0	0	0	0	0	0		0	0	0		2	0	2						2
0800-0900		0	0	0	0	0	0		0	0	0		2	0	2						2
1500-1600		0	0	0	0	0	0		0	0	0		1	0	1						1
1600-1700		0	1	0	1	0	0		0	0	0		0	0	0						1
1700-1800		0	0	0	0	0	0		0	0	0		0	0	0						0
Totals		0	2	0	2	0	0		0	0	0		5	0	5						7

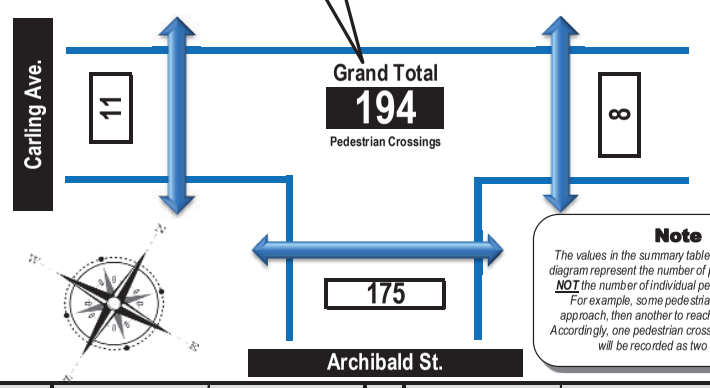
Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Archibald Street & Carling Avenue — **Ottawa, ON**

Pedestrian Crossings

Tuesday, 10 March 2020
0600-0900 & 1500-1800
6 Hour Survey
City of Ottawa Ward ► 15

Total number of all pedestrian crossings



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Carling Ave.	East Side Crossing Carling Ave.	Street Total	South Side Crossing Archibald St.	North Side Crossing N/A	Street Total	Grand Total
0600-0700	0	1	1	10	0	10	11
0700-0800	0	0	0	11	0	11	11
0800-0900	3	1	4	27	0	27	31
1500-1600	0	0	0	42	0	42	42
1600-1700	2	4	6	54	0	54	60
1700-1800	6	2	8	31	0	31	39
Totals	11	8	19	175	0	175	194

Comments:
Through traffic on Carling Avenue not included. The peak hours are based only on traffic to and from Archibald Street.

Turning Movement Count
Summary Report Including AM, OFF Peak, PM, Evening Peak Hours, and PHF

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Archibald Street & Carling Avenue — Ottawa, ON

Survey Date: Tuesday, 10 March 2020 **Start Time:** 0600 **AADT Factor:** 1.0
Weather AM: Light Rain +4° C **Survey Duration:** 6 Hrs. **Survey Hours:** 0600-0900 & 1500-1800
Weather PM: Overcast +4° C **Surveyor(s):** T. Carmody

	Carling Ave. Eastbound					Carling Ave. Westbound						Archibald St. Northbound					N/A Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0600-0700	0	0	2	0	2	0	0	0	0	0	2	0	0	3	0	3	0	0	0	0	0	3	5
0700-0800	0	0	1	0	1	0	0	0	0	0	1	0	0	20	0	20	0	0	0	0	0	20	21
0800-0900	0	0	1	0	1	0	0	0	0	0	1	0	0	23	0	23	0	0	0	0	0	23	24
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0	23	0	0	0	0	0	23	23
1600-1700	0	0	6	0	6	0	0	0	0	0	6	0	0	14	0	14	0	0	0	0	0	14	20
1700-1800	0	0	5	0	5	0	0	0	0	0	5	0	0	19	0	19	0	0	0	0	0	19	24
Totals	0	0	15	0	15	0	0	0	0	0	15	0	0	102	0	102	0	0	0	0	0	102	117

Through traffic on Carling Avenue not included.

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

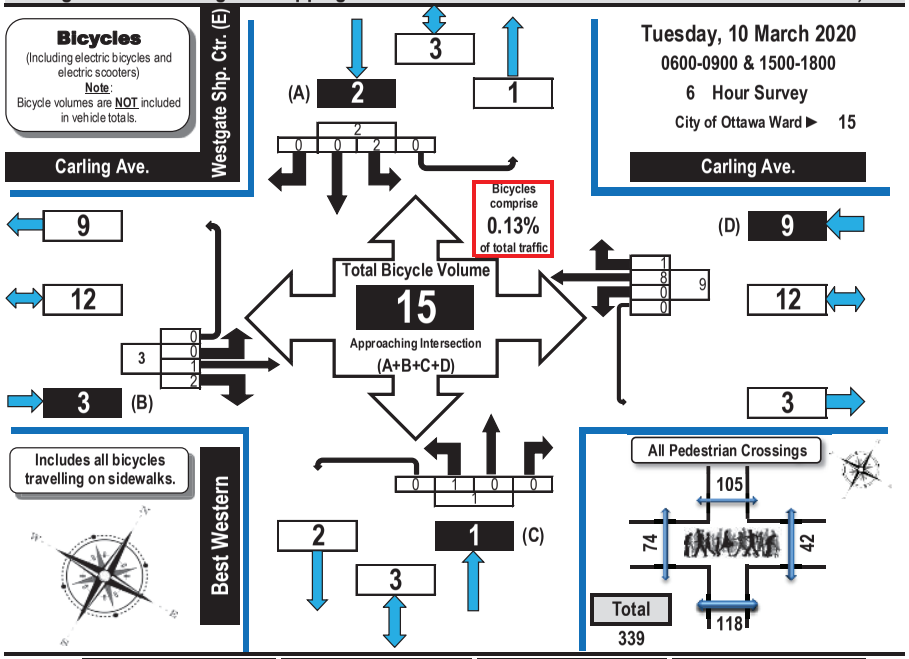
AM Peak Hour Factor ➡ 0.65	Highest Hourly Vehicle Volume Between 0500h & 1000h																					
AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0745-0845	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	26	0	0	0	0	0	26	26
OFF Peak Hour Factor ➡ N/A	Highest Hourly Vehicle Volume Between 1000h & 1500h																					
OFF Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Hour Factor ➡ 0.72	Highest Hourly Vehicle Volume Between 1500h & 1900h																					
PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1515-1615	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	26	0	0	0	0	0	26	26
EVNG Peak Hour Factor ➡ N/A	Highest Hourly Vehicle Volume Between 1900h & 0000h																					
EVNG Pk Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:
Through traffic on Carling Avenue not included. The peak hours are based only on traffic to and from Archibald Street.

Notes:
1. Includes all vehicle types except bicycles and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Turning Movement Count
Bicycle Summary Flow Diagram

Carling Avenue & Westgate Shopping Centre - EAST Access — Ottawa, ON



	Carling Ave. Eastbound					Carling Ave. Westbound					Best Western Northbound					Westgate Shp. Ctr. (E) Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700-0800	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	4
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0	2
1600-1700	0	0	1	0	1	0	0	1	0	0	1	0	0	0	0	0	1	0	0	1	3
1700-1800	0	0	1	0	1	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	6
Totals	0	1	2	0	3	0	8	1	0	9	1	0	0	0	1	2	0	0	0	2	15

ACCURATE TRUSTED TRAFFIC DATA

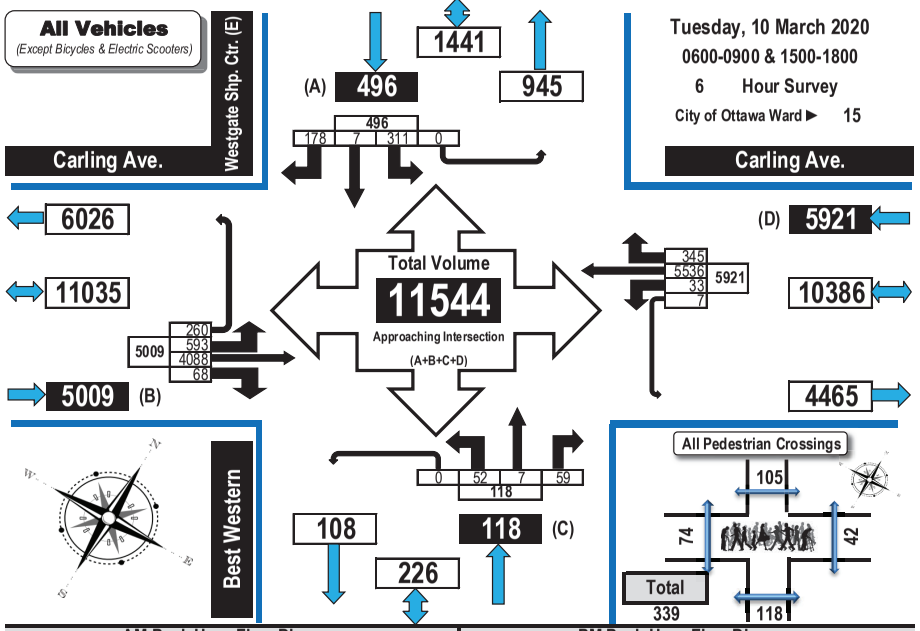
Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

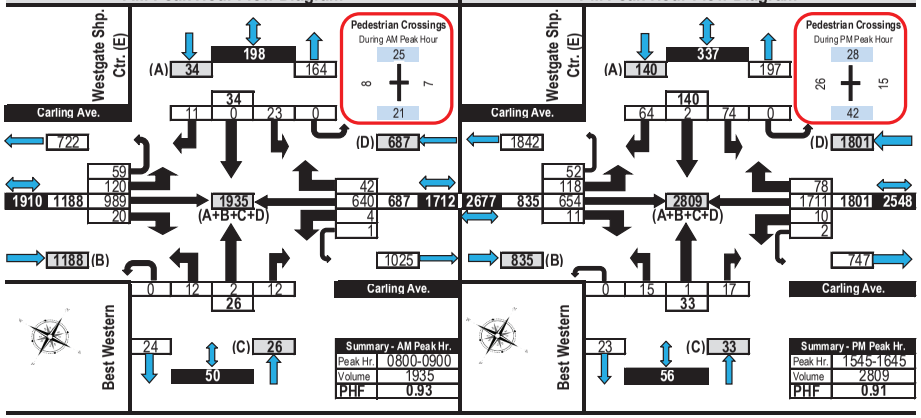
Carling Avenue & Westgate Shopping Centre - EAST Access — **Ottawa, ON**

All Vehicles (Except Bicycles & Electric Scooters)

Tuesday, 10 March 2020
0600-0900 & 1500-1800
6 Hour Survey
City of Ottawa Ward ► 15



AM Peak Hour Flow Diagram



PM Peak Hour Flow Diagram

Printed on: 3/16/2020 — Prepared by: thetrafficspecialist@gmail.com — Flow Diagrams: AM PM Peak

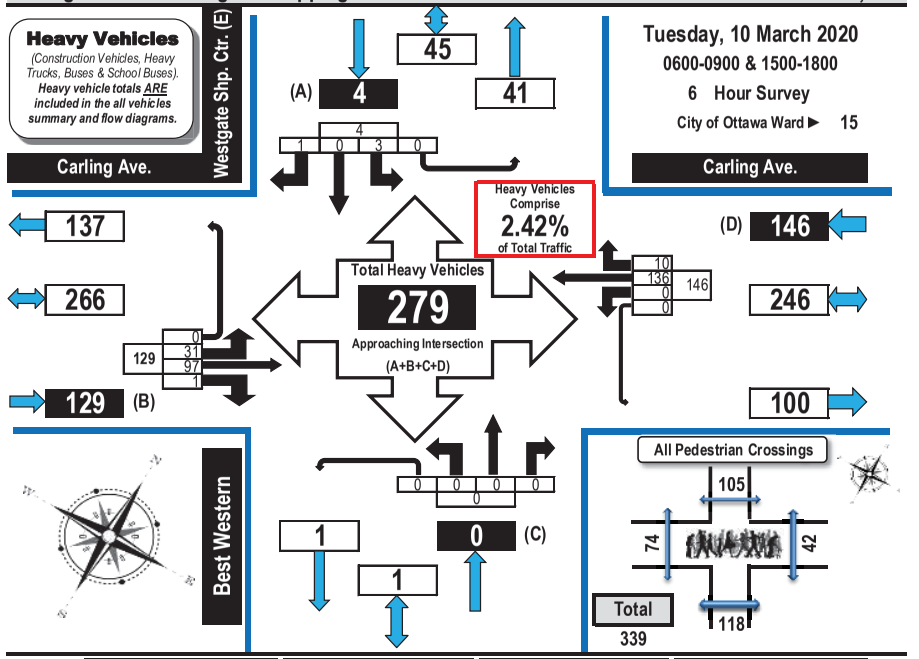
ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Heavy Vehicle Summary Flow Diagram

Carling Avenue & Westgate Shopping Centre - EAST Access — **Ottawa, ON**

Heavy Vehicles (Construction Vehicles, Heavy Trucks, Buses & School Buses). *Heavy vehicle totals **ARE** included in the all vehicles summary and flow diagrams.*

Tuesday, 10 March 2020
0600-0900 & 1500-1800
6 Hour Survey
City of Ottawa Ward ► 15



	Carling Ave. Eastbound					Carling Ave. Westbound					Best Western Northbound					Westgate Shp. Ctr. (E) Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0600-0700	6	7	0	0	13	0	9	2	0	11	0	0	0	0	0	0	0	0	0	0	24
0700-0800	7	22	0	0	29	0	29	3	0	32	0	0	0	0	0	0	0	1	0	1	62
0800-0900	7	22	1	0	30	0	33	0	0	33	0	0	0	0	0	0	0	0	0	0	63
1500-1600	3	20	0	0	23	0	30	4	0	34	0	0	0	0	0	3	0	0	0	3	60
1600-1700	6	13	0	0	19	0	21	1	0	22	0	0	0	0	0	0	0	0	0	0	41
1700-1800	2	13	0	0	15	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	29
Totals	31	97	1	0	129	0	136	10	0	146	0	0	0	0	0	3	0	1	0	4	279

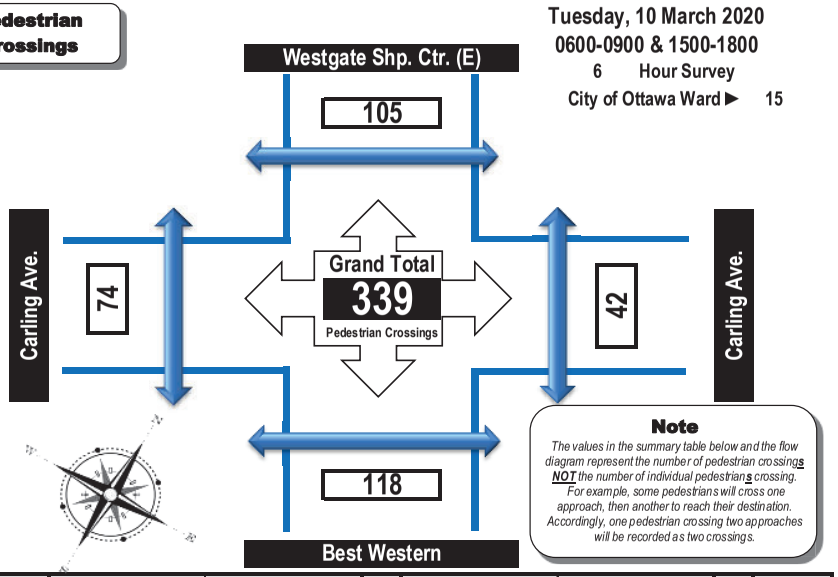
Printed on: 3/16/2020 — Prepared by: thetrafficspecialist@gmail.com — Summary: Heavy Vehicles

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Carling Avenue & Westgate Shopping Centre - EAST Access — Ottawa, ON

Pedestrian Crossings

Tuesday, 10 March 2020
0600-0900 & 1500-1800
6 Hour Survey
City of Ottawa Ward ▶ 15



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Carling Ave.	East Side Crossing Carling Ave.	Street Total	South Side Crossing Best Western	North Side Crossing Westgate Shp. Ctr. (E)	Street Total	Grand Total
0600-0700	0	0	0	5	1	6	6
0700-0800	3	1	4	18	3	21	25
0800-0900	8	7	15	21	25	46	61
1500-1600	23	12	35	19	17	36	71
1600-1700	20	12	32	38	27	65	97
1700-1800	20	10	30	17	32	49	79
Totals	74	42	116	118	105	223	339

Comments:
Many of the heavy trucks to and from the Westgate Shopping Centre are associated with construction activity on site. A high percentage of the heavy vehicle traffic in general is comprised of OC Transpo buses, school and other buses. There was occasional backup, eastbound on Carling Avenue, from Merivale Road during the PM peak period. There were some conflicts between eastbound left-turning vehicles and pedestrians crossing the

Turning Movement Count
Summary Report Including AM, OFF Peak, PM, Evening Peak Hours, and PHF

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Carling Avenue & Westgate Shopping Centre - EAST Access — Ottawa, ON

Survey Date: Tuesday, 10 March 2020 **Start Time:** 0600 **AADT Factor:** 1.0
Weather AM: Light Rain +4° C **Survey Duration:** 6 Hrs. **Survey Hours:** 0600-0900 & 1500-1800
Weather PM: Overcast +4° C **Surveyor(s):** T. Carmody

	Carling Ave. Eastbound					Carling Ave. Westbound					Best Western Northbound					Westgate Shp. Ctr. (E) Southbound					
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0600-0700	49	386	7	20	462	2	132	19	0	153	615	4	1	17	0	22	17	2	4	0	23	45	660
0700-0800	65	874	10	52	1001	0	360	33	0	393	1394	7	1	5	0	13	25	1	10	0	36	49	1443
0800-0900	120	989	20	59	1188	4	640	42	1	687	1875	12	2	12	0	26	23	0	11	0	34	60	1935
1500-1600	134	540	6	50	730	4	1531	80	2	1617	2347	11	1	12	0	24	84	1	50	0	135	159	2506
1600-1700	109	657	10	49	825	10	1653	93	3	1759	2584	6	1	8	0	15	67	2	62	0	131	146	2730
1700-1800	116	642	15	30	803	13	1220	78	1	1312	2115	12	1	5	0	18	95	1	41	0	137	155	2270
Totals	593	4088	68	260	5009	33	5536	345	7	5921	10930	52	7	59	0	118	311	7	178	0	496	614	11544

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

AM Peak Hour Factor ➡ 0.93												Highest Hourly Vehicle Volume Between 0500h & 1000h										
AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0800-0900	120	989	20	59	1188	4	640	42	1	687	1875	12	2	12	0	26	23	0	11	0	34	60	1935
OFF Peak Hour Factor ➡ N/A												Highest Hourly Vehicle Volume Between 1000h & 1500h										
OFF Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Hour Factor ➡ 0.91												Highest Hourly Vehicle Volume Between 1500h & 1900h										
PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1545-1645	118	654	11	52	835	10	1711	78	2	1801	2636	15	1	17	0	33	74	2	64	0	140	173	2809
EVNG Peak Hour Factor ➡ N/A												Highest Hourly Vehicle Volume Between 1900h & 0000h										
EVNG Pk Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:
Many of the heavy trucks to and from the Westgate Shopping Centre are associated with construction activity on site. A high percentage of the heavy vehicle traffic in general is comprised of OC Transpo buses, school and other buses. There was occasional backup, eastbound on Carling Avenue, from Merivale Road during the PM peak period. There were some conflicts between eastbound left-turning vehicles and pedestrians crossing the Westgate Shopping Centre access.

Notes:
1. Includes all vehicle types except bicycles and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Transportation Services - Traffic Services

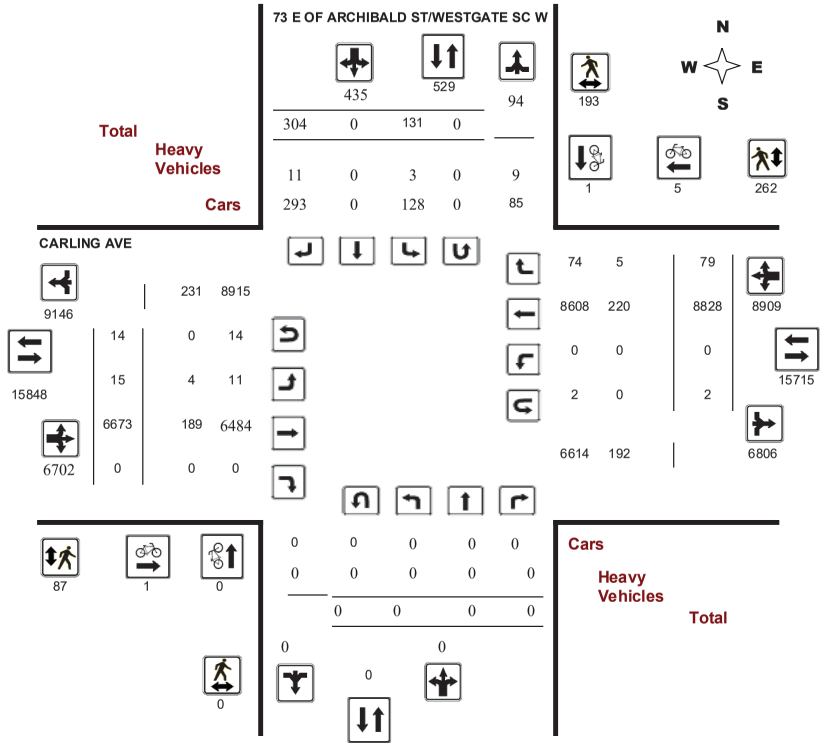
Turning Movement Count - Study Results

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018 **WO No:** 37476

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

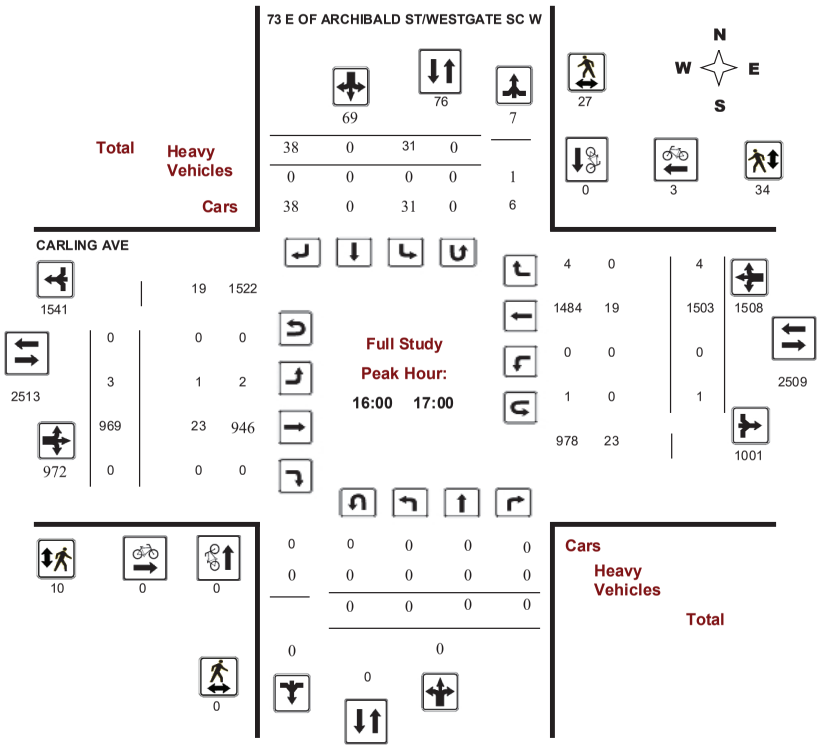
Turning Movement Count - Study Results

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018 **WO No:** 37476

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



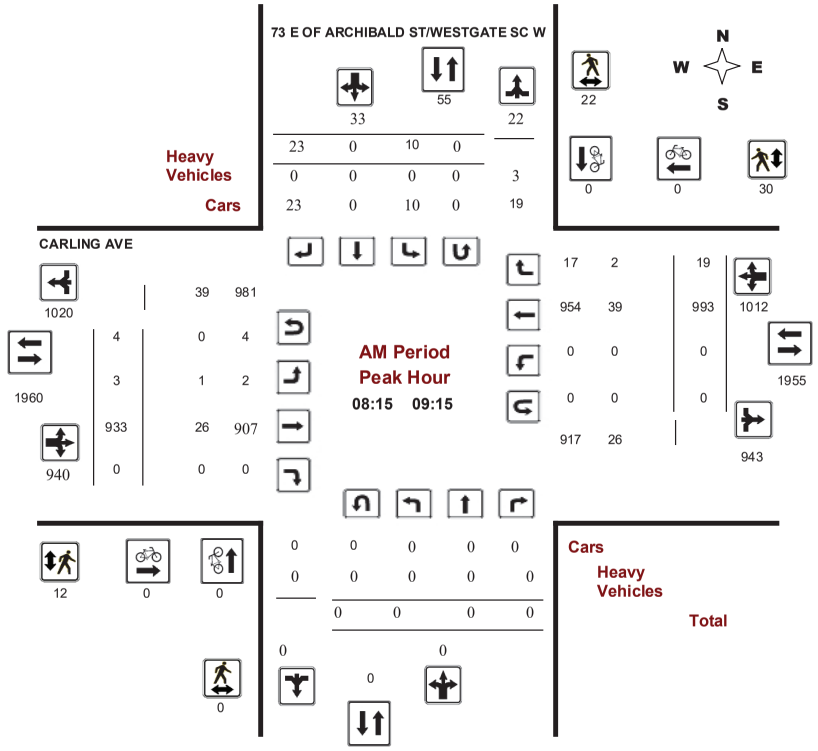
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018 **WO No:** 37476

Start Time: 07:00 **Device:** Miovision



Comments

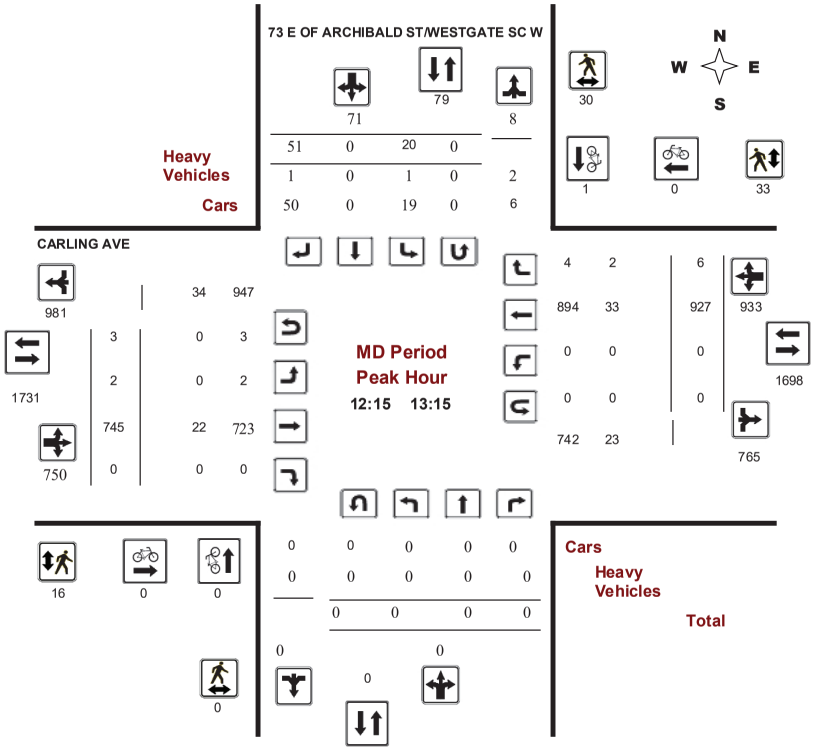
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018 **WO No:** 37476

Start Time: 07:00 **Device:** Miovision



Comments

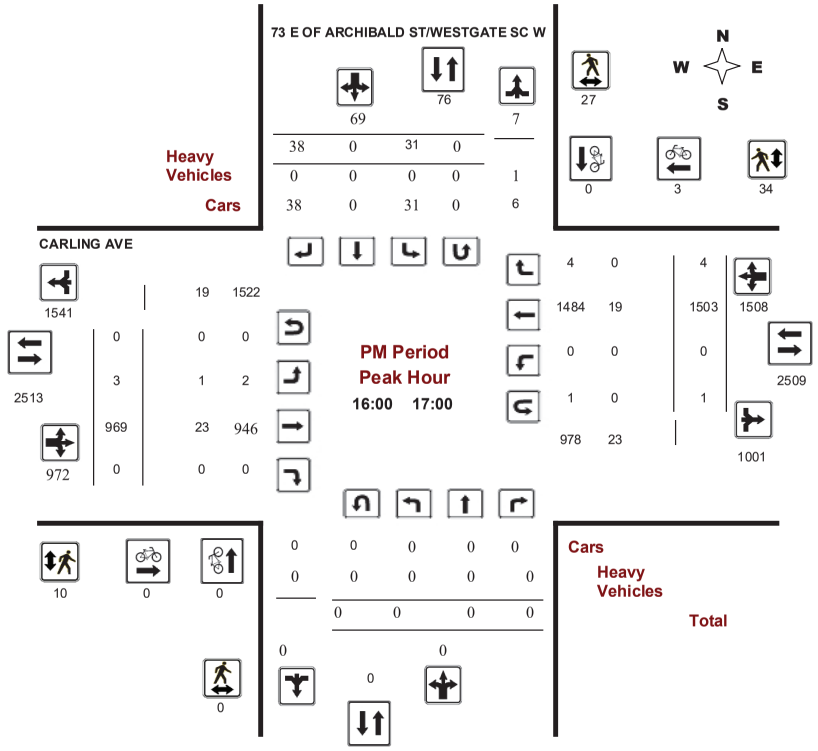
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018 **WO No:** 37476

Start Time: 07:00 **Device:** Miovision



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018 **WO No:** 37476

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, January 31, 201

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 14 Westbound: 2

AADT Factor 1.00

	73 E OF ARCHIBALD ST/WESTGATE SC W									CARLING AVE									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	0	0	**0**	3	0	7	**10**	**10**	1	917	0	**918**	0	695	13	**708**	**1626**	**1636**
08:00 09:00	0	0	0	**0**	8	0	17	**25**	**25**	4	958	0	**962**	0	939	17	**956**	**1918**	**1943**
09:00 10:00	0	0	0	**0**	14	0	48	**62**	**62**	0	815	0	**815**	0	875	20	**895**	**1710**	**1772**
11:30 12:30	0	0	0	**0**	21	0	61	**82**	**82**	2	692	0	**694**	0	917	11	**928**	**1622**	**1704**
12:30 13:30	0	0	0	**0**	17	0	55	**72**	**72**	3	702	0	**705**	0	928	4	**932**	**1637**	**1709**
15:00 16:00	0	0	0	**0**	18	0	45	**63**	**63**	1	658	0	**659**	0	1601	5	**1606**	**2265**	**2328**
16:00 17:00	0	0	0	**0**	31	0	38	**69**	**69**	3	969	0	**972**	0	1503	4	**1507**	**2479**	**2548**
17:00 18:00	0	0	0	**0**	19	0	33	**52**	**52**	1	962	0	**963**	0	1370	5	**1375**	**2338**	**2390**
Sub Total	0	0	0	**0**	131	0	304	**435**	**435**	15	6673	0	**6688**	0	8828	79	**8907**	**15595**	**16030**
U Turns				**0**				**0**	**0**				**14**				**2**	**16**	**16**
Total	0	0	0	**0**	131	0	304	**435**	**435**	15	6673	0	**6702**	0	8828	79	**8909**	**15611**	**16046**
EQ 12Hr	0	0	0	**0**	182	0	423	**605**	**605**	21	9275	0	**9316**	0	12271	110	**12384**	**21699**	**22304**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.																	**1.39**		
AVG 12Hr	0	0	0	**0**	172	0	398	**570**	**605**	20	8742	0	**8780**	0	11565	103	**11671**	**21699**	**22304**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.																	**1**		
AVG 24Hr	0	0	0	**0**	225	0	522	**747**	**747**	26	11452	0	**11501**	0	15150	136	**15289**	**26790**	**27537**

Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. **1.31**

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018 **WO No:** 37476

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		73 E OF ARCHIBALD ST/WESTGATE SC W									CARLING AVE								
		Northbound				Southbound					Eastbound				Westbound				
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	0	0	0	1	1	1	0	177	0	177	0	144	0	144	1	322
07:15	07:30	0	0	0	0	1	0	2	3	5	0	237	0	237	0	162	2	164	5	404
07:30	07:45	0	0	0	0	1	0	1	2	9	0	247	0	247	0	183	7	190	9	439
07:45	08:00	0	0	0	0	1	0	3	4	9	1	256	0	258	0	206	4	210	9	472
08:00	08:15	0	0	0	0	1	0	2	3	6	1	238	0	240	0	207	2	209	6	452
08:15	08:30	0	0	0	0	1	0	7	8	11	0	249	0	249	0	223	3	226	11	483
08:30	08:45	0	0	0	0	3	0	7	10	20	1	256	0	257	0	265	9	274	20	541
08:45	09:00	0	0	0	0	3	0	1	4	9	2	215	0	220	0	244	3	247	9	471
09:00	09:15	0	0	0	0	3	0	8	11	15	0	213	0	214	0	261	4	265	15	490
09:15	09:30	0	0	0	0	3	0	10	13	18	0	193	0	194	0	199	5	204	18	411
09:30	09:45	0	0	0	0	2	0	11	13	17	0	202	0	202	0	214	4	219	17	434
09:45	10:00	0	0	0	0	6	0	19	25	32	0	207	0	207	0	201	7	208	32	440
11:30	11:45	0	0	0	0	4	0	10	14	18	0	147	0	147	0	241	4	245	18	406
11:45	12:00	0	0	0	0	7	0	20	27	32	2	194	0	197	0	234	3	237	32	461
12:00	12:15	0	0	0	0	5	0	16	21	22	0	148	0	148	0	210	1	211	22	380
12:15	12:30	0	0	0	0	5	0	15	20	23	0	203	0	204	0	232	3	235	23	459
12:30	12:45	0	0	0	0	5	0	12	17	19	1	176	0	179	0	241	1	242	19	438
12:45	13:00	0	0	0	0	8	0	11	19	21	1	201	0	202	0	227	1	228	21	449
13:00	13:15	0	0	0	0	2	0	13	15	16	0	165	0	165	0	227	1	228	16	408
13:15	13:30	0	0	0	0	2	0	19	21	23	1	160	0	162	0	233	1	234	23	417
15:00	15:15	0	0	0	0	9	0	17	26	29	1	172	0	173	0	409	2	411	29	610
15:15	15:30	0	0	0	0	1	0	8	9	9	0	154	0	154	0	386	0	386	9	549
15:30	15:45	0	0	0	0	2	0	8	10	11	0	167	0	168	0	439	1	440	11	618
15:45	16:00	0	0	0	0	6	0	12	18	20	0	165	0	165	0	367	2	369	20	552
16:00	16:15	0	0	0	0	11	0	17	28	28	0	223	0	223	0	426	0	427	28	678
16:15	16:30	0	0	0	0	7	0	5	12	14	1	230	0	231	0	372	1	373	14	616
16:30	16:45	0	0	0	0	4	0	7	11	14	0	253	0	253	0	363	3	366	14	630
16:45	17:00	0	0	0	0	9	0	9	18	20	2	263	0	265	0	342	0	342	20	625
17:00	17:15	0	0	0	0	7	0	11	18	20	0	267	0	267	0	375	2	377	20	662
17:15	17:30	0	0	0	0	2	0	12	14	16	1	255	0	257	0	336	1	337	16	608
17:30	17:45	0	0	0	0	5	0	5	10	11	0	231	0	231	0	323	1	324	11	565
17:45	18:00	0	0	0	0	5	0	5	10	11	0	209	0	209	0	336	1	337	11	556
Total:		0	0	0	0	131	0	304	435	529	15	6673	0	6702	0	8828	79	8909	529	16,046

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018 **WO No:** 37476

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		73 E OF ARCHIBALD ST/WESTGATE SC W			CARLING AVE			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	1	1	1
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	1	0	1	1
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	1	1	0	0	0	1
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	1	1	1
16:30	16:45	0	0	0	0	1	1	1
16:45	17:00	0	0	0	0	1	1	1
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	1	1	1
17:45	18:00	0	0	0	0	0	0	0
Total		0	1	1	1	5	6	7

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018 **WO No:** 37476

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period	73 E OF ARCHIBALD ST/WESTGATE SC W			CARLING AVE			
	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	4	**4**	1	3	**4**	**8**
07:15 07:30	0	4	**4**	1	5	**6**	**10**
07:30 07:45	0	2	**2**	2	2	**4**	**6**
07:45 08:00	0	3	**3**	2	11	**13**	**16**
08:00 08:15	0	1	**1**	1	11	**12**	**13**
08:15 08:30	0	4	**4**	1	5	**6**	**10**
08:30 08:45	0	4	**4**	2	10	**12**	**16**
08:45 09:00	0	6	**6**	6	6	**12**	**18**
09:00 09:15	0	8	**8**	3	9	**12**	**20**
09:15 09:30	0	1	**1**	0	5	**5**	**6**
09:30 09:45	0	7	**7**	3	7	**10**	**17**
09:45 10:00	0	7	**7**	5	19	**24**	**31**
11:30 11:45	0	4	**4**	3	7	**10**	**14**
11:45 12:00	0	11	**11**	7	14	**21**	**32**
12:00 12:15	0	13	**13**	4	7	**11**	**24**
12:15 12:30	0	7	**7**	2	11	**13**	**20**
12:30 12:45	0	9	**9**	9	7	**16**	**25**
12:45 13:00	0	11	**11**	3	6	**9**	**20**
13:00 13:15	0	3	**3**	2	9	**11**	**14**
13:15 13:30	0	8	**8**	4	10	**14**	**22**
15:00 15:15	0	8	**8**	2	6	**8**	**16**
15:15 15:30	0	4	**4**	1	6	**7**	**11**
15:30 15:45	0	7	**7**	0	8	**8**	**15**
15:45 16:00	0	8	**8**	1	13	**14**	**22**
16:00 16:15	0	2	**2**	2	7	**9**	**11**
16:15 16:30	0	11	**11**	1	9	**10**	**21**
16:30 16:45	0	7	**7**	4	8	**12**	**19**
16:45 17:00	0	7	**7**	3	10	**13**	**20**
17:00 17:15	0	9	**9**	5	7	**12**	**21**
17:15 17:30	0	6	**6**	4	8	**12**	**18**
17:30 17:45	0	3	**3**	3	6	**9**	**12**
17:45 18:00	0	4	**4**	0	10	**10**	**14**
Total	0	193	**193**	87	262	**349**	**542**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018 **WO No:** 37476

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

Time Period		73 E OF ARCHIBALD ST/WESTGATE SC W				CARLING AVE														
		Northbound				Southbound					Eastbound				Westbound					
		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**12**	0	5	0	**12**	**24**	**12**
07:15	07:30	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**12**	0	7	0	**12**	**24**	**12**
07:30	07:45	0	0	0	**0**	0	0	1	**2**	**2**	0	4	0	**13**	0	8	1	**13**	**26**	**14**
07:45	08:00	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**10**	0	4	0	**10**	**20**	**10**
08:00	08:15	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**12**	0	6	0	**12**	**24**	**12**
08:15	08:30	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**13**	0	8	0	**13**	**26**	**13**
08:30	08:45	0	0	0	**0**	0	0	0	**2**	**2**	0	6	0	**18**	0	12	2	**20**	**38**	**20**
08:45	09:00	0	0	0	**0**	0	0	0	**1**	**1**	1	11	0	**16**	0	4	0	**15**	**31**	**16**
09:00	09:15	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**19**	0	15	0	**19**	**38**	**19**
09:15	09:30	0	0	0	**0**	0	0	0	**0**	**0**	0	8	0	**19**	0	11	0	**19**	**38**	**19**
09:30	09:45	0	0	0	**0**	0	0	1	**1**	**1**	0	7	0	**17**	0	9	0	**16**	**33**	**17**
09:45	10:00	0	0	0	**0**	1	0	6	**7**	**7**	0	7	0	**22**	0	9	0	**17**	**39**	**23**
11:30	11:45	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**13**	0	7	0	**13**	**26**	**13**
11:45	12:00	0	0	0	**0**	0	0	1	**2**	**2**	1	7	0	**18**	0	9	0	**16**	**34**	**18**
12:00	12:15	0	0	0	**0**	0	0	1	**1**	**1**	0	9	0	**16**	0	6	0	**15**	**31**	**16**
12:15	12:30	0	0	0	**0**	0	0	0	**1**	**1**	0	5	0	**18**	0	13	1	**19**	**37**	**19**
12:30	12:45	0	0	0	**0**	1	0	1	**2**	**2**	0	6	0	**14**	0	7	0	**14**	**28**	**15**
12:45	13:00	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**12**	0	7	0	**12**	**24**	**12**
13:00	13:15	0	0	0	**0**	0	0	0	**1**	**1**	0	6	0	**12**	0	6	1	**13**	**25**	**13**
13:15	13:30	0	0	0	**0**	0	0	0	**1**	**1**	1	7	0	**14**	0	6	0	**13**	**27**	**14**
15:00	15:15	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**13**	0	6	0	**13**	**26**	**13**
15:15	15:30	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**16**	0	9	0	**16**	**32**	**16**
15:30	15:45	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**13**	0	8	0	**13**	**26**	**13**
15:45	16:00	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**13**	0	7	0	**13**	**26**	**13**
16:00	16:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**7**	0	5	0	**7**	**14**	**7**
16:15	16:30	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**11**	0	4	0	**11**	**22**	**11**
16:30	16:45	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**10**	0	3	0	**10**	**20**	**10**
16:45	17:00	0	0	0	**0**	0	0	0	**1**	**1**	1	7	0	**15**	0	7	0	**14**	**29**	**15**
17:00	17:15	0	0	0	**0**	1	0	0	**1**	**1**	0	1	0	**6**	0	5	0	**7**	**13**	**7**
17:15	17:30	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**5**	0	1	0	**5**	**10**	**5**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	0	0	**2**	**4**	**2**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**13**	0	6	0	**13**	**26**	**13**
Total:	None	0	0	0	**0**	3	0	11	**23**	**23**	4	189	0	**424**	0	220	5	**417**	**841**	**432**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018 **WO No:** 37476

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		73 E OF ARCHIBALD ST/WESTGATE SC W Northbound U-Turn Total	Southbound U-Turn Total	CARLING AVE Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	1	0	1
08:00	08:15	0	0	1	0	1
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	3	0	3
09:00	09:15	0	0	1	0	1
09:15	09:30	0	0	1	0	1
09:30	09:45	0	0	0	1	1
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	1	0	1
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	1	0	1
12:30	12:45	0	0	2	0	2
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	1	0	1
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	1	0	1
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	1	1
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	1	0	1
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	14	2	16

Transportation Services - Traffic Services

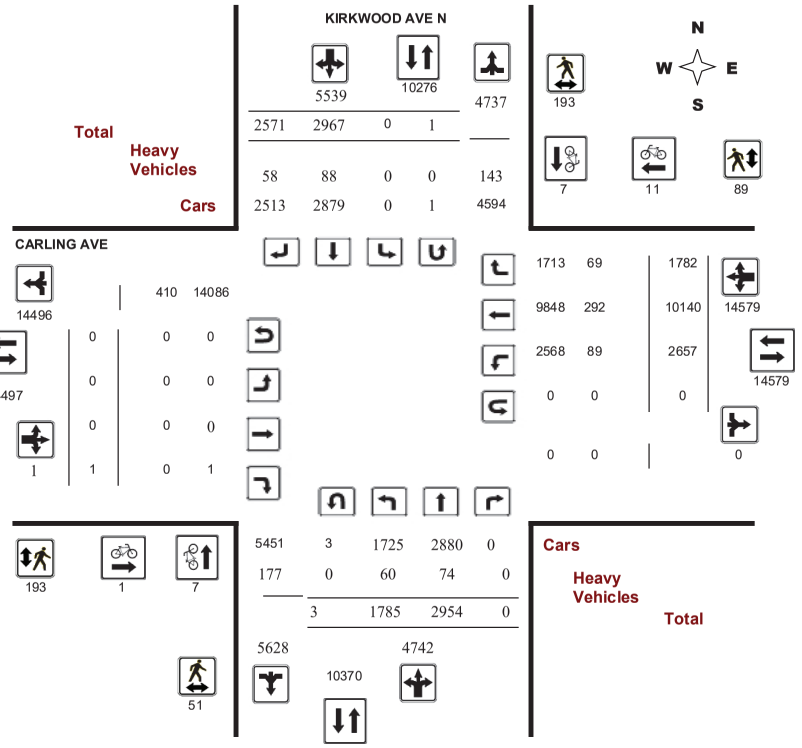
Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE N

Survey Date: Tuesday, April 10, 2018 **WO No:** 37707

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

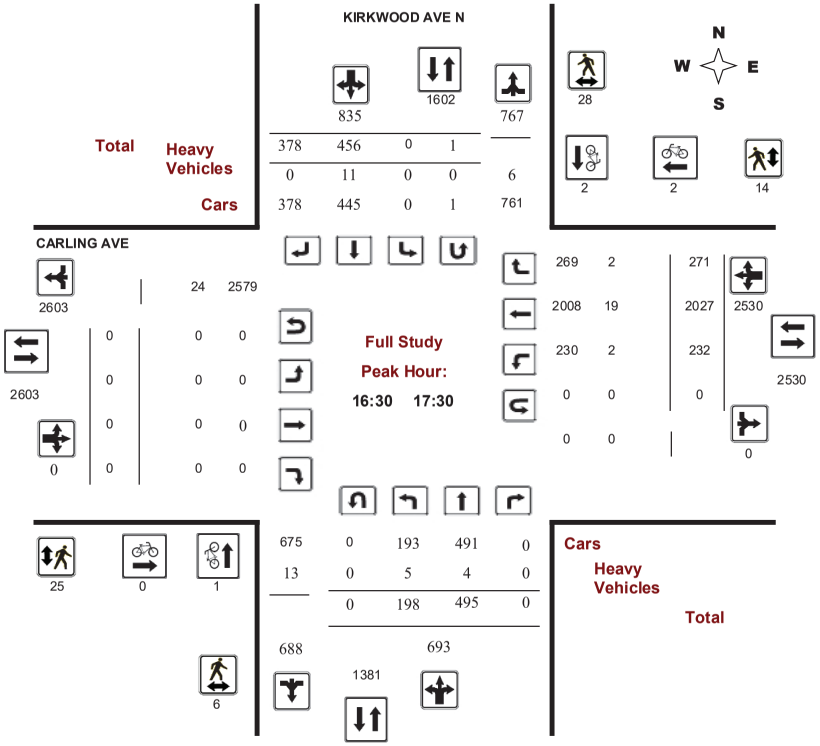
Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE N

Survey Date: Tuesday, April 10, 2018 **WO No:** 37707

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



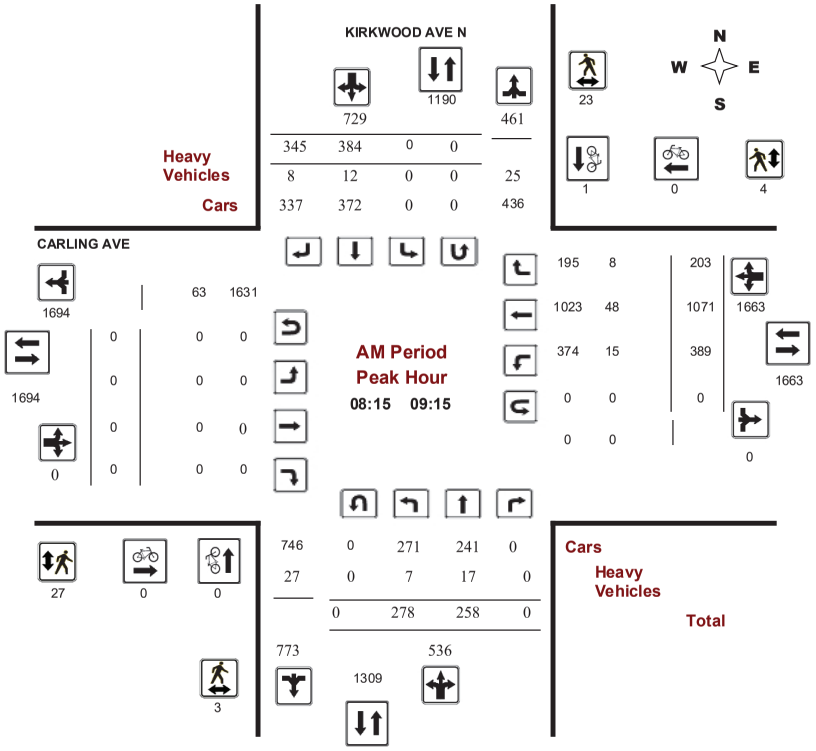
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ KIRKWOOD AVE N

Survey Date: Tuesday, April 10, 2018 **WO No:** 37707

Start Time: 07:00 **Device:** Miovision



Comments

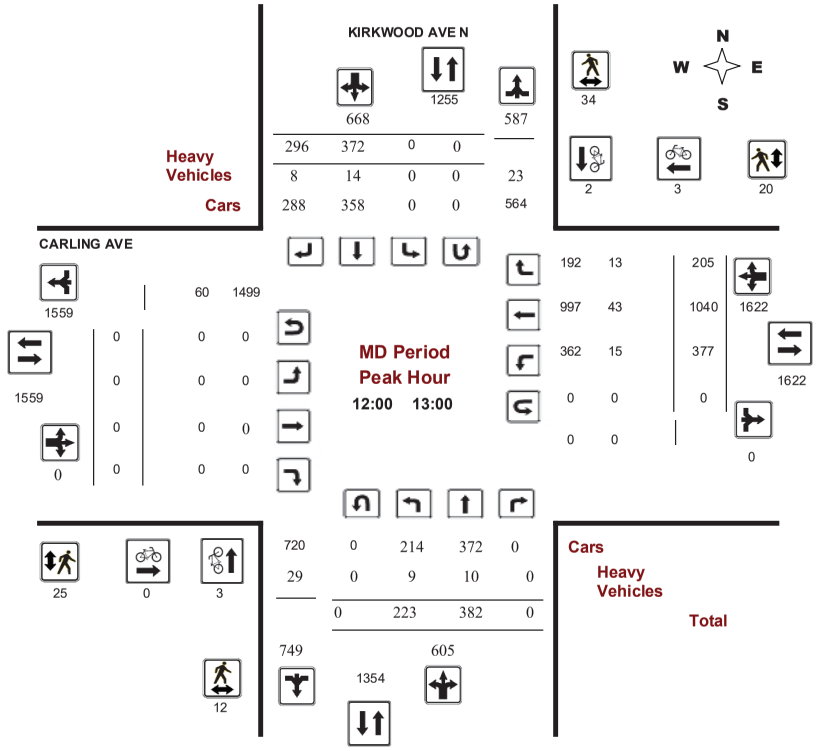
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ KIRKWOOD AVE N

Survey Date: Tuesday, April 10, 2018 **WO No:** 37707

Start Time: 07:00 **Device:** Miovision



Comments

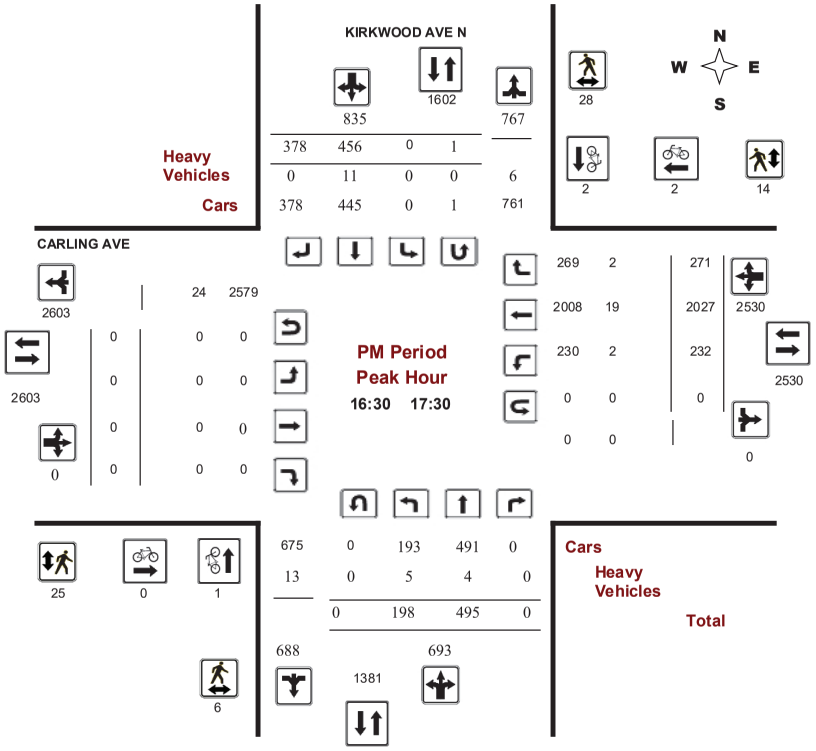
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ KIRKWOOD AVE N

Survey Date: Tuesday, April 10, 2018 **WO No:** 37707

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE N

Survey Date: Tuesday, April 10, 2018 **WO No:** 37707

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, April 10, 2018

Total Observed U-Turns

Northbound: 3 Southbound: 1

Eastbound: 0 Westbound: 0

AADT Factor .90

	KIRKWOOD AVE N									CARLING AVE									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	242	216	0	**458**	0	322	280	**602**	**1060**	0	0	0	**0**	375	691	158	**1224**	**1224**	**2284**
08:00 09:00	276	242	0	**518**	0	377	369	**746**	**1264**	0	0	0	**0**	356	1007	175	**1538**	**1538**	**2802**
09:00 10:00	238	293	0	**531**	0	308	272	**580**	**1111**	0	0	0	**0**	397	902	197	**1496**	**1496**	**2607**
11:30 12:30	210	397	0	**607**	0	362	301	**663**	**1270**	0	0	0	**0**	361	1035	221	**1617**	**1617**	**2887**
12:30 13:30	224	380	0	**604**	0	379	284	**663**	**1267**	0	0	0	**0**	353	957	249	**1559**	**1559**	**2826**
15:00 16:00	205	446	0	**651**	0	357	344	**701**	**1352**	0	0	0	**0**	329	1657	256	**2242**	**2242**	**3594**
16:00 17:00	205	462	0	**667**	0	440	363	**803**	**1470**	0	0	1	**1**	206	2052	233	**2491**	**2492**	**3962**
17:00 18:00	185	518	0	**703**	0	422	358	**780**	**1483**	0	0	0	**0**	280	1839	293	**2412**	**2412**	**3895**
Sub Total	1785	2954	0	**4739**	0	2967	2571	**5538**	**10277**	0	0	1	**1**	2657	10140	1782	**14579**	**14580**	**24857**
U Turns				**3**				**1**	**4**				**0**				**0**	**0**	**4**
Total	1785	2954	0	**4742**	0	2967	2571	**5539**	**10281**	0	0	1	**1**	2657	10140	1782	**14579**	**14580**	**24861**
EQ 12Hr	2481	4106	0	**6591**	0	4124	3574	**7699**	**14291**	0	0	1	**1**	3693	14095	2477	**20265**	**20266**	**34557**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	2105	3483	0	**5591**	0	3498	3031	**6530**	**12862**	0	0	1	**1**	3133	11955	2101	**17189**	**18239**	**31101**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**0.9**					
AVG 24Hr	2757	4562	0	**7324**	0	4583	3971	**8555**	**15879**	0	0	2	**2**	4104	15661	2752	**22517**	**22519**	**38398**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE N

Survey Date: Tuesday, April 10, 2018 **WO No:** 37707

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		KIRKWOOD AVE N									CARLING AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	50	43	0	93	0	67	48	115	426	0	0	0	0	80	174	28	282	426	490
07:15	07:30	56	58	0	114	0	82	69	151	513	0	0	0	0	71	154	37	262	513	527
07:30	07:45	63	39	0	102	0	73	64	137	541	0	0	0	0	126	173	64	363	541	602
07:45	08:00	73	76	0	149	0	100	99	199	651	0	0	0	0	98	190	29	317	651	665
08:00	08:15	65	42	0	107	0	84	91	175	519	0	0	0	0	86	171	25	282	519	564
08:15	08:30	76	54	0	130	0	104	93	197	599	0	0	0	0	79	228	35	342	599	669
08:30	08:45	68	78	0	146	0	89	95	184	652	0	0	0	0	94	314	61	469	652	799
08:45	09:00	67	68	0	135	0	100	90	190	644	0	0	0	0	97	294	54	445	644	770
09:00	09:15	67	58	0	125	0	91	67	158	604	0	0	0	0	119	235	53	407	604	690
09:15	09:30	54	68	0	122	0	85	70	155	568	0	0	0	0	86	202	52	340	568	617
09:30	09:45	49	89	0	138	0	67	70	137	567	0	0	0	0	93	226	43	362	567	637
09:45	10:00	68	78	0	147	0	65	65	130	569	0	0	0	0	99	239	49	387	569	664
11:30	11:45	57	106	0	164	0	76	68	144	642	0	0	0	0	95	239	56	390	642	698
11:45	12:00	48	100	0	148	0	93	88	181	675	0	0	0	0	90	246	63	399	675	728
12:00	12:15	51	104	0	155	0	96	74	170	678	0	0	0	0	99	294	54	447	678	772
12:15	12:30	54	87	0	141	0	97	71	168	618	0	0	0	0	77	256	48	381	618	690
12:30	12:45	54	83	0	137	0	85	76	161	615	0	0	0	0	100	256	49	405	615	703
12:45	13:00	64	108	0	172	0	94	75	169	698	0	0	0	0	101	234	54	389	698	730
13:00	13:15	49	98	0	147	0	102	62	164	667	0	0	0	0	72	226	84	382	667	693
13:15	13:30	57	91	0	148	0	98	71	169	648	0	0	0	0	80	241	62	383	648	700
15:00	15:15	48	89	0	137	0	67	73	140	599	0	0	0	0	106	350	60	516	599	793
15:15	15:30	46	120	0	166	0	93	90	183	705	0	0	0	0	94	348	49	491	705	840
15:30	15:45	60	108	0	168	0	103	106	209	727	0	0	0	0	64	486	75	625	727	1002
15:45	16:00	51	129	0	180	0	94	75	169	709	0	0	0	0	65	473	72	610	709	959
16:00	16:15	51	107	0	159	0	92	77	169	647	0	0	1	1	59	528	59	646	647	975
16:15	16:30	52	125	0	177	0	112	99	211	716	0	0	0	0	44	521	47	612	716	1000
16:30	16:45	45	103	0	148	0	110	91	201	677	0	0	0	0	49	546	66	661	677	1010
16:45	17:00	57	127	0	184	0	126	96	222	774	0	0	0	0	54	457	61	572	774	978
17:00	17:15	47	125	0	172	0	112	87	199	738	0	0	0	0	67	529	63	659	738	1030
17:15	17:30	49	140	0	189	0	108	104	213	794	0	0	0	0	62	495	81	638	794	1040
17:30	17:45	45	118	0	163	0	102	89	191	730	0	0	0	0	83	476	73	632	730	986
17:45	18:00	44	135	0	179	0	100	78	178	736	0	0	0	0	68	339	76	483	736	840
Total:		1785	2954	0	4742	0	2967	2571	5539	20646	0	0	1	1	2657	10140	1782	14579	20646	24,861

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE N

Survey Date: Tuesday, April 10, 2018 **WO No:** 37707

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

Time Period		KIRKWOOD AVE N			CARLING AVE			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	1	0	1	0	1	1	2
07:45	08:00	0	0	0	0	2	2	2
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	1	1	0	0	0	1
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	1	1	0	0	0	1
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	1	0	1	0	0	0	1
12:15	12:30	1	1	2	0	2	2	4
12:30	12:45	0	0	0	0	1	1	1
12:45	13:00	1	1	2	0	0	0	2
13:00	13:15	0	1	1	0	0	0	1
13:15	13:30	1	0	1	0	0	0	1
15:00	15:15	0	0	0	0	1	1	1
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	1	1	1
15:45	16:00	1	0	1	0	0	0	1
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	1	0	1	1
16:30	16:45	0	0	0	0	1	1	1
16:45	17:00	0	0	0	0	1	1	1
17:00	17:15	0	2	2	0	0	0	2
17:15	17:30	1	0	1	0	0	0	1
17:30	17:45	0	0	0	0	1	1	1
17:45	18:00	0	0	0	0	0	0	0
Total		7	7	**14**	1	11	12	26

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE N

Survey Date: Tuesday, April 10, 2018 **WO No:** 37707

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period		KIRKWOOD AVE N			CARLING AVE			
		NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	3	**3**	5	0	**5**	**8**
07:30	07:45	0	4	**4**	5	0	**5**	**9**
07:45	08:00	0	5	**5**	5	0	**5**	**10**
08:00	08:15	1	17	**18**	4	4	**8**	**26**
08:15	08:30	1	9	**10**	7	1	**8**	**18**
08:30	08:45	0	2	**2**	6	0	**6**	**8**
08:45	09:00	1	9	**10**	7	1	**8**	**18**
09:00	09:15	1	3	**4**	7	2	**9**	**13**
09:15	09:30	1	1	**2**	3	2	**5**	**7**
09:30	09:45	0	7	**7**	5	1	**6**	**13**
09:45	10:00	1	6	**7**	5	0	**5**	**12**
11:30	11:45	0	5	**5**	7	1	**8**	**13**
11:45	12:00	1	4	**5**	7	2	**9**	**14**
12:00	12:15	3	12	**15**	7	4	**11**	**26**
12:15	12:30	3	6	**9**	4	5	**9**	**18**
12:30	12:45	5	7	**12**	7	10	**17**	**29**
12:45	13:00	1	9	**10**	7	1	**8**	**18**
13:00	13:15	0	12	**12**	8	1	**9**	**21**
13:15	13:30	0	6	**6**	4	3	**7**	**13**
15:00	15:15	0	4	**4**	7	1	**8**	**12**
15:15	15:30	3	4	**7**	7	5	**12**	**19**
15:30	15:45	2	5	**7**	10	2	**12**	**19**
15:45	16:00	6	3	**9**	6	7	**13**	**22**
16:00	16:15	5	7	**12**	6	8	**14**	**26**
16:15	16:30	8	6	**14**	13	9	**22**	**36**
16:30	16:45	2	5	**7**	9	4	**13**	**20**
16:45	17:00	2	4	**6**	3	4	**7**	**13**
17:00	17:15	0	5	**5**	3	0	**3**	**8**
17:15	17:30	2	14	**16**	10	6	**16**	**32**
17:30	17:45	2	4	**6**	4	4	**8**	**14**
17:45	18:00	0	5	**5**	5	1	**6**	**11**
Total	.....	51	193	**244**	193	89	**282**	**526**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE N

Survey Date: Tuesday, April 10, 2018 **WO No:** 37707

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		KIRKWOOD AVE N									CARLING AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	1	3	0	**9**	0	1	1	**9**	**18**	0	0	0	**13**	4	11	4	**19**	**32**	**25**
07:15	07:30	2	3	0	**11**	0	3	3	**12**	**23**	0	0	0	**13**	3	8	3	**14**	**27**	**25**
07:30	07:45	2	2	0	**10**	0	1	2	**8**	**18**	0	0	0	**10**	5	6	3	**14**	**24**	**21**
07:45	08:00	0	4	0	**8**	0	1	1	**7**	**15**	0	0	0	**10**	3	9	1	**13**	**23**	**19**
08:00	08:15	0	1	0	**4**	0	0	1	**5**	**9**	0	0	0	**10**	3	9	3	**15**	**25**	**17**
08:15	08:30	0	8	0	**17**	0	6	2	**19**	**36**	0	0	0	**14**	3	12	3	**18**	**32**	**34**
08:30	08:45	3	4	0	**12**	0	1	1	**7**	**19**	0	0	0	**20**	4	16	1	**21**	**41**	**30**
08:45	09:00	3	4	0	**12**	0	1	3	**10**	**22**	0	0	0	**15**	4	9	2	**15**	**30**	**26**
09:00	09:15	1	1	0	**10**	0	4	2	**9**	**19**	0	0	0	**14**	4	11	2	**17**	**31**	**25**
09:15	09:30	5	4	0	**18**	0	4	2	**14**	**32**	0	0	0	**16**	5	9	4	**18**	**34**	**33**
09:30	09:45	6	4	0	**19**	0	2	3	**11**	**30**	0	0	0	**21**	7	12	2	**21**	**42**	**36**
09:45	10:00	2	1	0	**8**	0	3	0	**8**	**16**	0	0	0	**23**	2	21	4	**27**	**50**	**33**
11:30	11:45	1	2	0	**11**	0	5	6	**17**	**28**	0	0	0	**19**	3	12	4	**19**	**38**	**33**
11:45	12:00	5	1	0	**11**	0	3	2	**10**	**21**	0	0	0	**18**	2	11	4	**17**	**35**	**28**
12:00	12:15	4	5	0	**17**	0	3	2	**12**	**29**	0	0	0	**16**	5	10	2	**17**	**33**	**31**
12:15	12:30	2	2	0	**12**	0	5	1	**14**	**26**	0	0	0	**18**	3	15	6	**24**	**42**	**34**
12:30	12:45	1	1	0	**8**	0	2	2	**7**	**15**	0	0	0	**11**	4	8	2	**14**	**25**	**20**
12:45	13:00	2	2	0	**11**	0	4	3	**12**	**23**	0	0	0	**15**	3	10	3	**16**	**31**	**27**
13:00	13:15	1	2	0	**9**	0	1	3	**7**	**16**	0	0	0	**17**	5	13	1	**19**	**36**	**26**
13:15	13:30	3	4	0	**13**	0	2	4	**13**	**26**	0	0	0	**14**	4	7	3	**14**	**28**	**27**
15:00	15:15	1	6	0	**13**	0	4	2	**13**	**26**	0	0	0	**16**	2	13	1	**16**	**32**	**29**
15:15	15:30	2	3	0	**12**	0	5	3	**14**	**26**	0	0	0	**13**	2	8	3	**13**	**26**	**26**
15:30	15:45	2	1	0	**5**	0	1	6	**9**	**14**	0	0	0	**14**	1	6	1	**8**	**22**	**18**
15:45	16:00	2	1	0	**10**	0	5	1	**8**	**18**	0	0	0	**10**	2	7	1	**10**	**20**	**19**
16:00	16:15	2	1	0	**5**	0	1	1	**4**	**9**	0	0	0	**10**	1	7	1	**9**	**19**	**14**
16:15	16:30	1	0	0	**6**	0	5	1	**7**	**13**	0	0	0	**8**	0	6	1	**7**	**15**	**14**
16:30	16:45	1	1	0	**6**	0	4	0	**5**	**11**	0	0	0	**8**	0	7	0	**7**	**15**	**13**
16:45	17:00	3	0	0	**7**	0	2	0	**3**	**10**	0	0	0	**6**	2	3	1	**6**	**12**	**11**
17:00	17:15	0	2	0	**6**	0	4	0	**6**	**12**	0	0	0	**4**	0	4	0	**4**	**8**	**10**
17:15	17:30	1	1	0	**3**	0	1	0	**3**	**6**	0	0	0	**6**	0	5	1	**6**	**12**	**9**
17:30	17:45	0	0	0	**4**	0	3	0	**4**	**8**	0	0	0	**5**	1	5	1	**7**	**12**	**10**
17:45	18:00	1	0	0	**4**	0	1	0	**2**	**6**	0	0	0	**3**	2	2	1	**5**	**8**	**7**
Total:	None	60	74	0	**311**	0	88	58	**289**	**600**	0	0	0	**410**	89	292	69	**450**	**860**	**730**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE N

Survey Date: Tuesday, April 10, 2018 **WO No:** 37707

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

		KIRKWOOD AVE N		CARLING AVE		
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	1	0	0	0	1
11:30	11:45	1	0	0	0	1
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	1	0	0	0	1
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	1	0	0	1
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		3	1	0	0	4

Transportation Services - Traffic Services

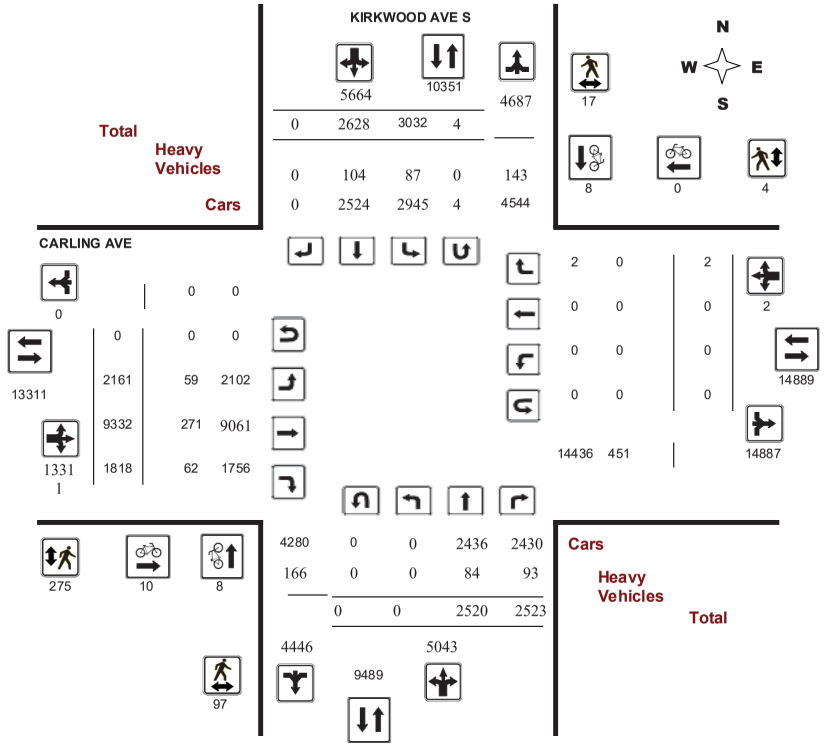
Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Tuesday, April 10, 2018 **WO No:** 37699

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

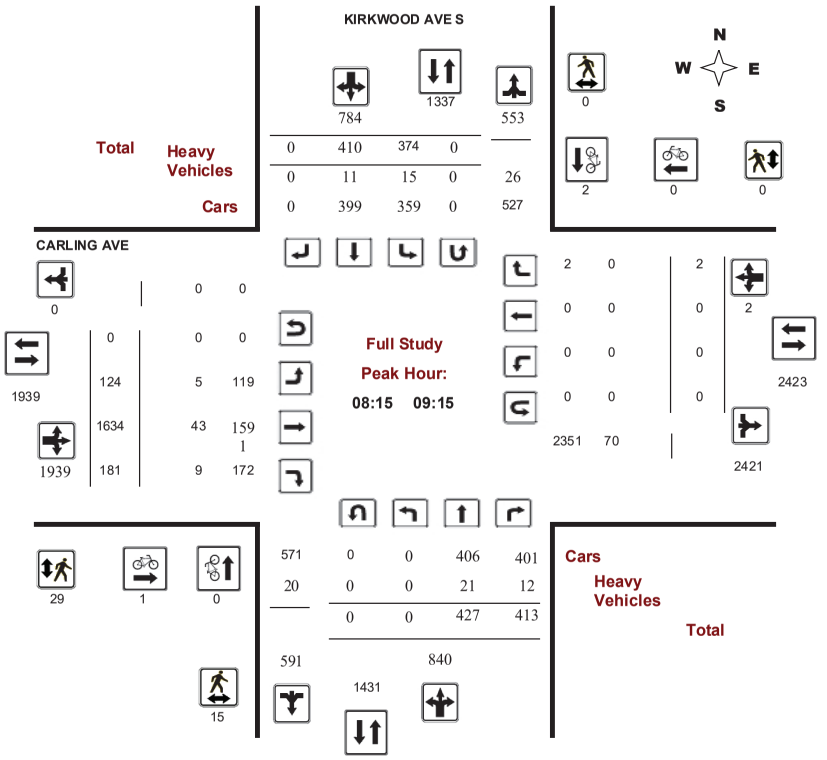
Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Tuesday, April 10, 2018 **WO No:** 37699

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



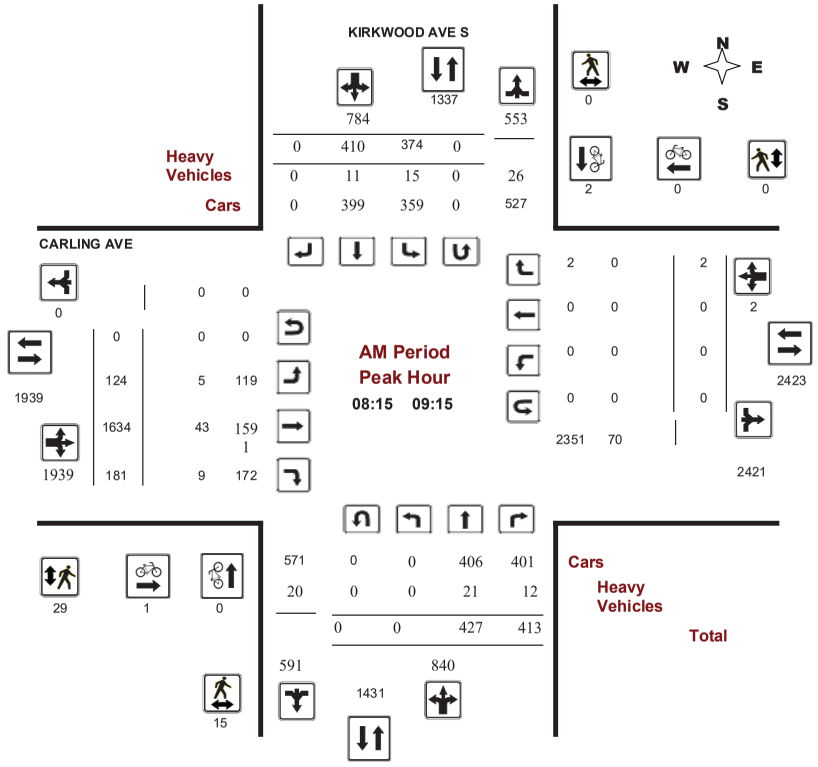
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Tuesday, April 10, 2018 **WO No:** 37699

Start Time: 07:00 **Device:** Miovision



Comments

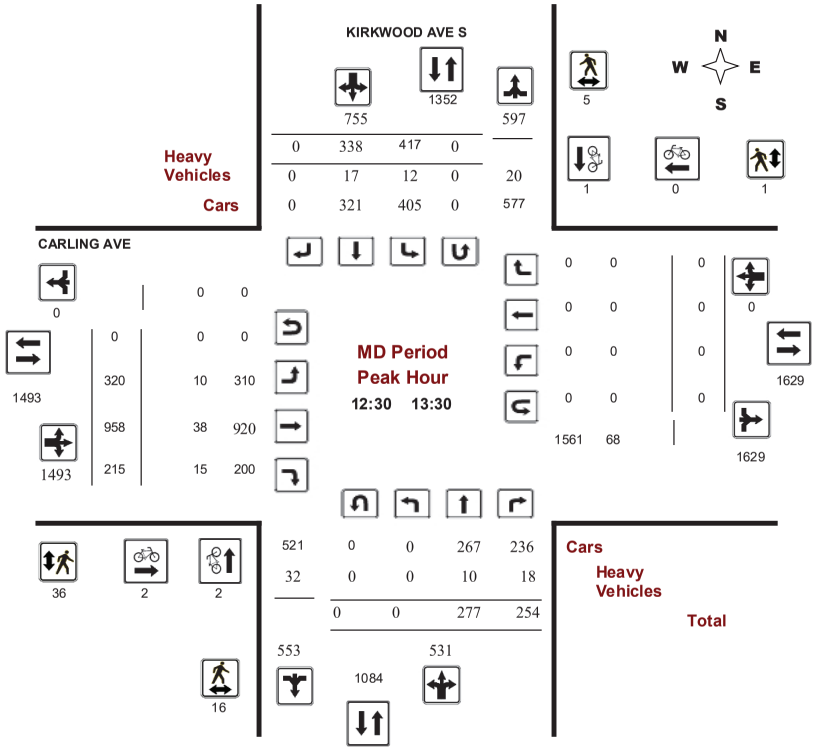
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Tuesday, April 10, 2018 **WO No:** 37699

Start Time: 07:00 **Device:** Miovision



Comments

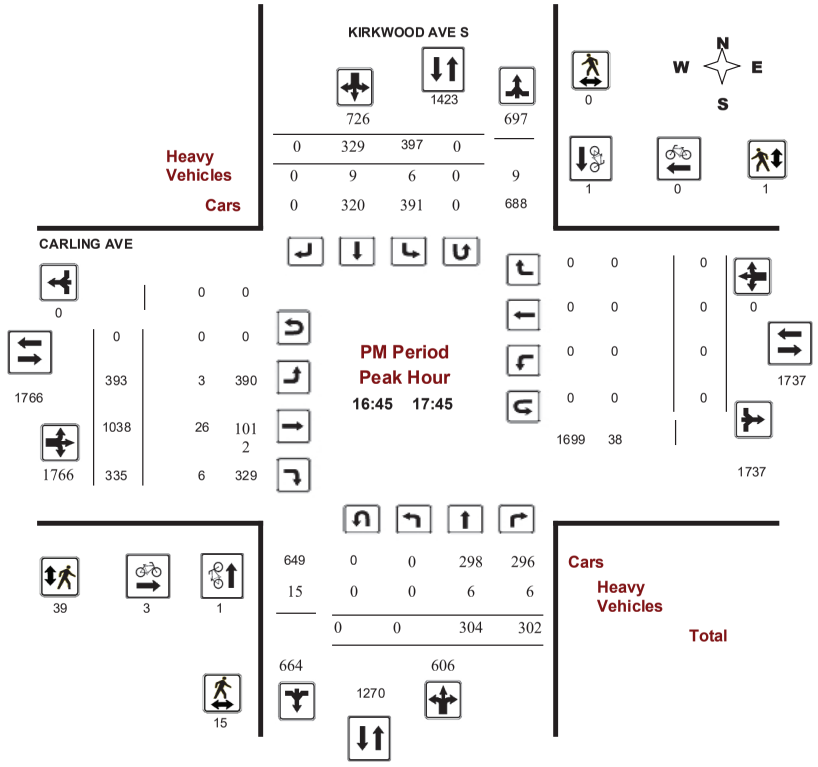
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Tuesday, April 10, 2018 **WO No:** 37699

Start Time: 07:00 **Device:** Miovision



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Tuesday, April 10, 2018 **WO No:** 37699

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, April 10, 2018

Total Observed U-Turns

Northbound: 0 Southbound: 4

Eastbound: 0 Westbound: 0

AADT Factor .90

	KIRKWOOD AVE S								CARLING AVE									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	316	318	**634**	343	336	0	**679**	**1313**	140	1511	150	**1801**	0	0	0	**0**	**1801**	**3114**
08:00 09:00	0	440	424	**864**	359	375	0	**734**	**1598**	122	1610	174	**1906**	0	0	2	**2**	**1908**	**3506**
09:00 10:00	0	284	334	**618**	350	374	0	**724**	**1342**	224	1343	151	**1718**	0	0	0	**0**	**1718**	**3060**
11:30 12:30	0	282	239	**521**	384	309	0	**693**	**1214**	289	910	202	**1401**	0	0	0	**0**	**1401**	**2615**
12:30 13:30	0	277	254	**531**	417	338	0	**755**	**1286**	320	958	215	**1493**	0	0	0	**0**	**1493**	**2779**
15:00 16:00	0	322	330	**652**	417	283	0	**700**	**1352**	302	979	286	**1567**	0	0	0	**0**	**1567**	**2919**
16:00 17:00	0	291	350	**641**	378	293	0	**671**	**1312**	365	1016	306	**1687**	0	0	0	**0**	**1687**	**2999**
17:00 18:00	0	308	274	**582**	384	320	0	**704**	**1286**	399	1005	334	**1738**	0	0	0	**0**	**1738**	**3024**
Sub Total	0	2520	2523	**5043**	3032	2628	0	**5660**	**10703**	2161	9332	1818	**13311**	0	0	2	**2**	**13313**	**24016**
U Turns				**0**				**4**	**4**				**0**				**0**	**0**	**4**
Total	0	2520	2523	**5043**	3032	2628	0	**5664**	**10707**	2161	9332	1818	**13311**	0	0	2	**2**	**13313**	**24020**
EQ 12Hr	0	3503	3507	**7010**	4214	3653	0	**7873**	**14883**	3004	12971	2527	**18502**	0	0	3	**3**	**18505**	**33388**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	0	2971	2975	**5946**	3575	3098	0	**6678**	**13395**	2548	11002	2143	**15694**	0	0	2	**2**	**16654**	**30049**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**0.9**					
AVG 24Hr	0	3892	3897	**7789**	4683	4059	0	**8748**	**16537**	3338	14413	2808	**20559**	0	0	3	**3**	**20562**	**37099**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Tuesday, April 10, 2018 **WO No:** 37699

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		KIRKWOOD AVE S									CARLING AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	68	63	131	78	65	0	143	468	37	243	24	304	0	0	0	0	468	578
07:15	07:30	0	75	68	143	71	76	0	147	514	26	408	47	481	0	0	0	0	514	771
07:30	07:45	0	76	106	182	89	103	0	192	632	37	400	42	479	0	0	0	0	632	853
07:45	08:00	0	97	81	178	105	92	0	197	641	40	460	37	537	0	0	0	0	641	912
08:00	08:15	0	101	103	204	93	81	0	174	618	27	403	31	461	0	0	0	0	618	839
08:15	08:30	0	109	109	218	89	80	0	169	650	27	425	47	499	0	0	0	0	650	886
08:30	08:45	0	127	110	237	86	119	0	205	749	30	395	31	456	0	0	0	0	749	898
08:45	09:00	0	103	102	205	91	95	0	186	694	38	387	65	490	0	0	2	2	694	883
09:00	09:15	0	88	92	180	108	116	0	224	675	29	427	38	494	0	0	0	0	675	898
09:15	09:30	0	55	85	140	75	91	0	167	548	59	370	35	464	0	0	0	0	548	771
09:30	09:45	0	78	84	162	92	78	0	170	585	58	287	39	384	0	0	0	0	585	716
09:45	10:00	0	63	73	136	75	89	0	164	569	78	259	39	376	0	0	0	0	569	676
11:30	11:45	0	70	57	127	96	78	0	175	582	83	210	48	341	0	0	0	0	582	643
11:45	12:00	0	72	66	138	85	81	0	166	575	72	252	46	370	0	0	0	0	575	674
12:00	12:15	0	74	55	129	108	79	0	188	588	71	235	46	352	0	0	0	0	588	669
12:15	12:30	0	66	61	127	95	71	0	166	555	63	213	62	338	0	0	0	0	555	631
12:30	12:45	0	67	70	137	100	87	0	187	586	64	248	44	356	0	0	0	0	586	680
12:45	13:00	0	77	66	143	123	89	0	212	665	93	227	51	371	0	0	0	0	665	726
13:00	13:15	0	72	58	130	104	79	0	183	605	79	245	62	386	0	0	0	0	605	699
13:15	13:30	0	61	60	121	90	83	0	173	580	84	238	58	380	0	0	0	0	580	674
15:00	15:15	0	81	75	156	100	85	0	185	645	70	262	68	400	0	0	0	0	645	741
15:15	15:30	0	71	88	159	111	64	0	175	620	74	234	77	385	0	0	0	0	620	719
15:30	15:45	0	82	79	161	105	68	0	173	623	81	260	58	399	0	0	0	0	623	733
15:45	16:00	0	88	88	176	101	66	0	168	659	77	223	83	383	0	0	0	0	659	727
16:00	16:15	0	84	93	177	89	56	0	145	619	88	281	69	438	0	0	0	0	619	760
16:15	16:30	0	81	102	183	88	86	0	174	687	87	258	76	421	0	0	0	0	687	778
16:30	16:45	0	64	70	134	95	64	0	159	588	89	243	78	410	0	0	0	0	588	703
16:45	17:00	0	62	85	147	106	87	0	193	673	101	234	83	418	0	0	0	0	673	758
17:00	17:15	0	89	74	163	97	79	0	176	681	93	299	81	473	0	0	0	0	681	812
17:15	17:30	0	92	76	168	91	85	0	176	701	94	239	86	419	0	0	0	0	701	763
17:30	17:45	0	61	67	128	103	78	0	181	638	105	266	85	456	0	0	0	0	638	765
17:45	18:00	0	66	57	123	93	78	0	171	627	107	201	82	390	0	0	0	0	627	684
Total:		0	2520	2523	5043	3032	2628	0	5664	19840	2161	9332	1818	13311	0	0	2	2	19840	24,020

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Tuesday, April 10, 2018 **WO No:** 37699

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		KIRKWOOD AVE S			CARLING AVE			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	1	1	2	0	0	0	2
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	1	1	1	0	1	2
08:30	08:45	0	1	1	0	0	0	1
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	1	1	0	0	0	1
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	1	0	1	1
11:30	11:45	1	0	1	0	0	0	1
11:45	12:00	1	0	1	2	0	2	3
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	1	1	2	0	0	0	2
12:30	12:45	0	0	0	1	0	1	1
12:45	13:00	1	1	2	1	0	1	3
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	1	0	1	0	0	0	1
15:00	15:15	0	0	0	1	0	1	1
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	1	1	2	0	0	0	2
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	1	1	2	0	2	3
17:15	17:30	1	0	1	1	0	1	2
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total		8	8	**16**	10	0	10	26

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Tuesday, April 10, 2018 **WO No:** 37699

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

	KIRKWOOD AVE S			CARLING AVE			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	2	0	**2**	2	0	**2**	**4**
07:15 07:30	0	0	**0**	6	0	**6**	**6**
07:30 07:45	2	0	**2**	4	0	**4**	**6**
07:45 08:00	5	0	**5**	5	0	**5**	**10**
08:00 08:15	2	3	**5**	8	0	**8**	**13**
08:15 08:30	6	0	**6**	11	0	**11**	**17**
08:30 08:45	3	0	**3**	3	0	**3**	**6**
08:45 09:00	2	0	**2**	8	0	**8**	**10**
09:00 09:15	4	0	**4**	7	0	**7**	**11**
09:15 09:30	3	0	**3**	2	1	**3**	**6**
09:30 09:45	2	0	**2**	7	1	**8**	**10**
09:45 10:00	1	0	**1**	5	0	**5**	**6**
11:30 11:45	5	1	**6**	9	0	**9**	**15**
11:45 12:00	2	0	**2**	8	0	**8**	**10**
12:00 12:15	2	0	**2**	8	0	**8**	**10**
12:15 12:30	3	1	**4**	10	0	**10**	**14**
12:30 12:45	5	2	**7**	14	1	**15**	**22**
12:45 13:00	7	1	**8**	10	0	**10**	**18**
13:00 13:15	2	0	**2**	5	0	**5**	**7**
13:15 13:30	2	2	**4**	7	0	**7**	**11**
15:00 15:15	5	1	**6**	10	0	**10**	**16**
15:15 15:30	3	1	**4**	14	0	**14**	**18**
15:30 15:45	3	0	**3**	8	0	**8**	**11**
15:45 16:00	1	0	**1**	10	0	**10**	**11**
16:00 16:15	2	2	**4**	16	0	**16**	**20**
16:15 16:30	1	1	**2**	19	0	**19**	**21**
16:30 16:45	4	2	**6**	14	0	**14**	**20**
16:45 17:00	3	0	**3**	5	0	**5**	**8**
17:00 17:15	6	0	**6**	15	0	**15**	**21**
17:15 17:30	5	0	**5**	10	1	**11**	**16**
17:30 17:45	1	0	**1**	9	0	**9**	**10**
17:45 18:00	3	0	**3**	6	0	**6**	**9**
Total	97	17	**114**	275	4	**279**	**393**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Tuesday, April 10, 2018 **WO No:** 37699

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		KIRKWOOD AVE S									CARLING AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	4	4	**11**	2	3	0	**10**	**21**	1	6	0	**7**	0	0	0	**12**	**19**	**20**
07:15	07:30	0	4	1	**9**	3	3	0	**10**	**19**	0	5	1	**6**	0	0	0	**9**	**15**	**17**
07:30	07:45	0	4	0	**8**	3	4	0	**12**	**20**	1	9	0	**10**	0	0	0	**12**	**22**	**21**
07:45	08:00	0	1	2	**8**	1	3	0	**7**	**15**	2	8	2	**12**	0	0	0	**11**	**23**	**19**
08:00	08:15	0	1	1	**6**	1	2	0	**5**	**11**	1	3	2	**6**	0	0	0	**5**	**11**	**11**
08:15	08:30	0	6	3	**15**	4	3	0	**14**	**29**	1	8	3	**12**	0	0	0	**15**	**27**	**28**
08:30	08:45	0	4	3	**12**	4	3	0	**12**	**24**	1	7	2	**10**	0	0	0	**14**	**24**	**24**
08:45	09:00	0	7	2	**15**	2	3	0	**12**	**27**	0	14	3	**17**	0	0	0	**18**	**35**	**31**
09:00	09:15	0	4	4	**11**	5	2	0	**14**	**25**	3	14	1	**18**	0	0	0	**23**	**41**	**33**
09:15	09:30	0	1	6	**12**	4	5	0	**13**	**25**	3	12	0	**15**	0	0	0	**22**	**37**	**31**
09:30	09:45	0	6	8	**23**	5	6	0	**22**	**45**	5	8	3	**16**	0	0	0	**21**	**37**	**41**
09:45	10:00	0	2	3	**15**	1	6	0	**12**	**27**	3	14	4	**21**	0	0	0	**18**	**39**	**33**
11:30	11:45	0	2	4	**13**	4	4	0	**13**	**26**	3	5	3	**11**	0	0	0	**13**	**24**	**25**
11:45	12:00	0	4	5	**16**	2	3	0	**12**	**28**	3	10	4	**17**	0	0	0	**17**	**34**	**31**
12:00	12:15	0	2	4	**11**	2	4	0	**14**	**25**	6	14	1	**21**	0	0	0	**20**	**41**	**33**
12:15	12:30	0	0	0	**5**	6	4	0	**12**	**17**	2	5	1	**8**	0	0	0	**11**	**19**	**18**
12:30	12:45	0	2	8	**18**	2	5	0	**10**	**28**	1	15	3	**19**	0	0	0	**25**	**44**	**36**
12:45	13:00	0	3	3	**17**	3	5	0	**12**	**29**	1	10	6	**17**	0	0	0	**16**	**33**	**31**
13:00	13:15	0	1	4	**13**	2	4	0	**8**	**21**	1	5	4	**10**	0	0	0	**11**	**21**	**21**
13:15	13:30	0	4	3	**12**	5	3	0	**19**	**31**	7	8	2	**17**	0	0	0	**16**	**33**	**32**
15:00	15:15	0	5	3	**16**	7	6	0	**21**	**37**	3	12	2	**17**	0	0	0	**22**	**39**	**38**
15:15	15:30	0	1	3	**9**	5	1	0	**10**	**19**	3	16	4	**23**	0	0	0	**24**	**47**	**33**
15:30	15:45	0	4	4	**11**	3	2	0	**9**	**20**	0	7	1	**8**	0	0	0	**14**	**22**	**21**
15:45	16:00	0	2	3	**8**	1	0	0	**4**	**12**	1	5	3	**9**	0	0	0	**9**	**18**	**15**
16:00	16:15	0	2	1	**4**	1	1	0	**5**	**9**	1	9	0	**10**	0	0	0	**11**	**21**	**15**
16:15	16:30	0	1	1	**6**	0	4	0	**6**	**12**	1	5	0	**6**	0	0	0	**6**	**12**	**12**
16:30	16:45	0	1	2	**8**	2	4	0	**9**	**17**	2	7	1	**10**	0	0	0	**11**	**21**	**19**
16:45	17:00	0	3	2	**11**	2	3	0	**9**	**20**	1	5	3	**9**	0	0	0	**9**	**18**	**19**
17:00	17:15	0	2	1	**5**	3	1	0	**7**	**12**	1	8	1	**10**	0	0	0	**12**	**22**	**17**
17:15	17:30	0	0	1	**3**	0	1	0	**2**	**5**	1	8	1	**10**	0	0	0	**9**	**19**	**12**
17:30	17:45	0	1	2	**8**	1	4	0	**6**	**14**	0	5	1	**6**	0	0	0	**8**	**14**	**14**
17:45	18:00	0	0	2	**4**	1	2	0	**3**	**7**	0	4	0	**4**	0	0	0	**7**	**11**	**9**
Total:	None	0	84	93	**343**	87	104	0	**334**	**677**	59	271	62	**392**	0	0	0	**451**	**843**	**760**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Tuesday, April 10, 2018 **WO No:** 37699

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		KIRKWOOD AVE S Northbound U-Turn Total	KIRKWOOD AVE S Southbound U-Turn Total	CARLING AVE Eastbound U-Turn Total	CARLING AVE Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	1	0	0	1
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	1	0	0	1
11:45	12:00	0	0	0	0	0
12:00	12:15	0	1	0	0	1
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	1	0	0	1
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	4	0	0	4

Transportation Services - Traffic Services

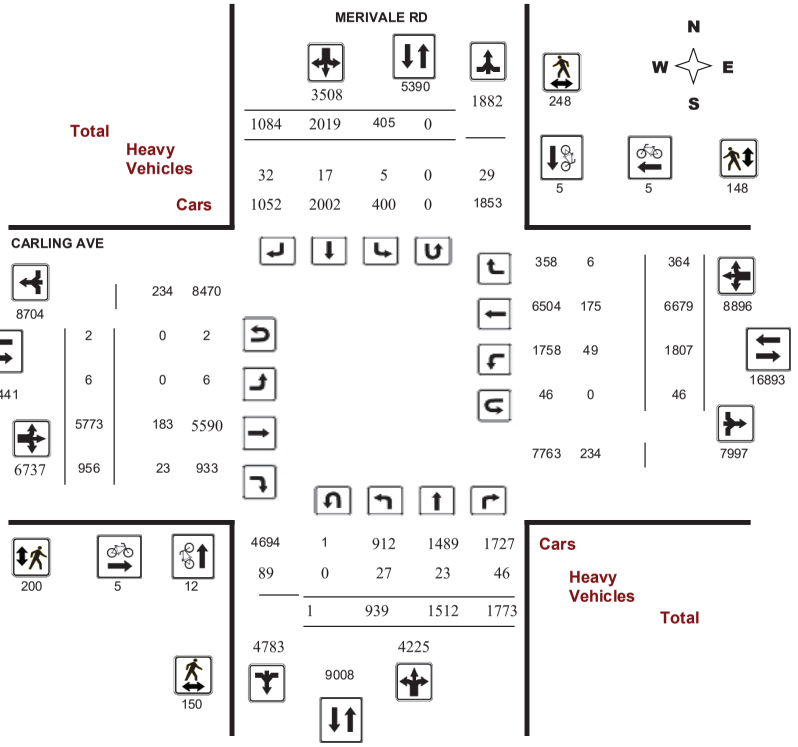
Turning Movement Count - Study Results

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37685

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

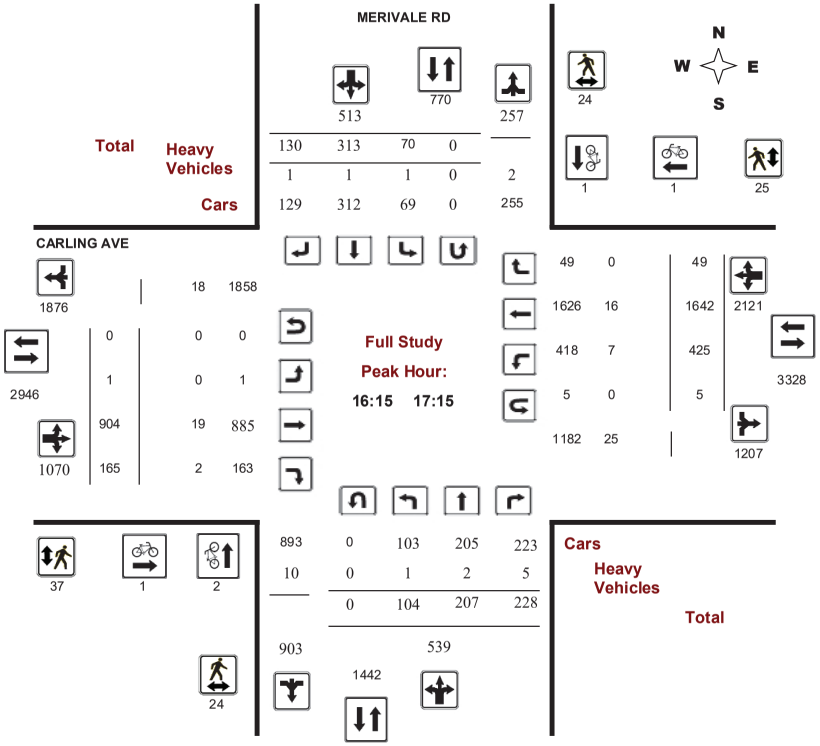
Turning Movement Count - Study Results

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37685

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



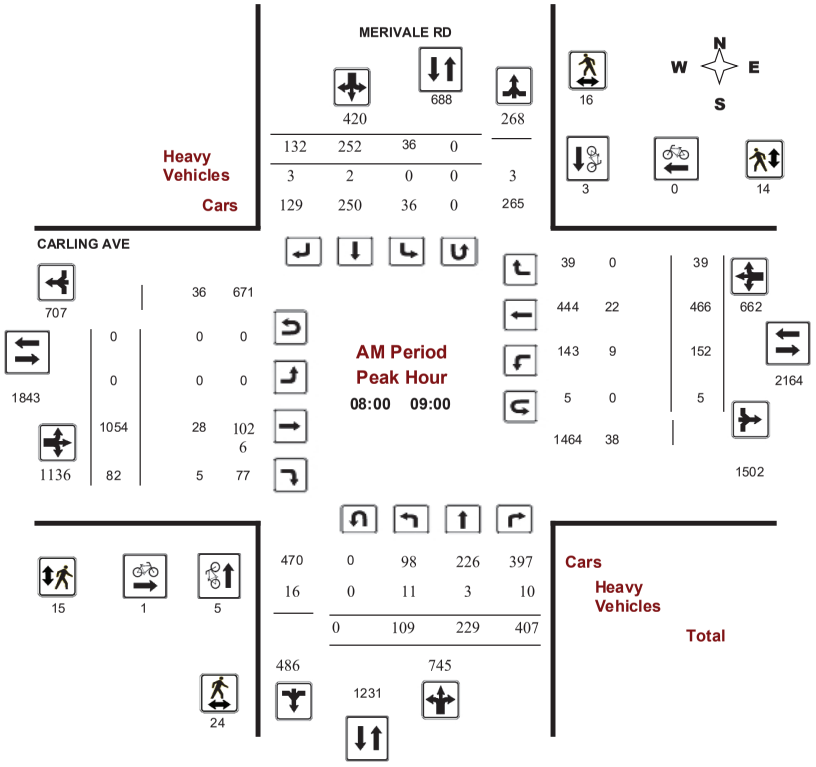
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37685

Start Time: 07:00 **Device:** Miovision



Comments

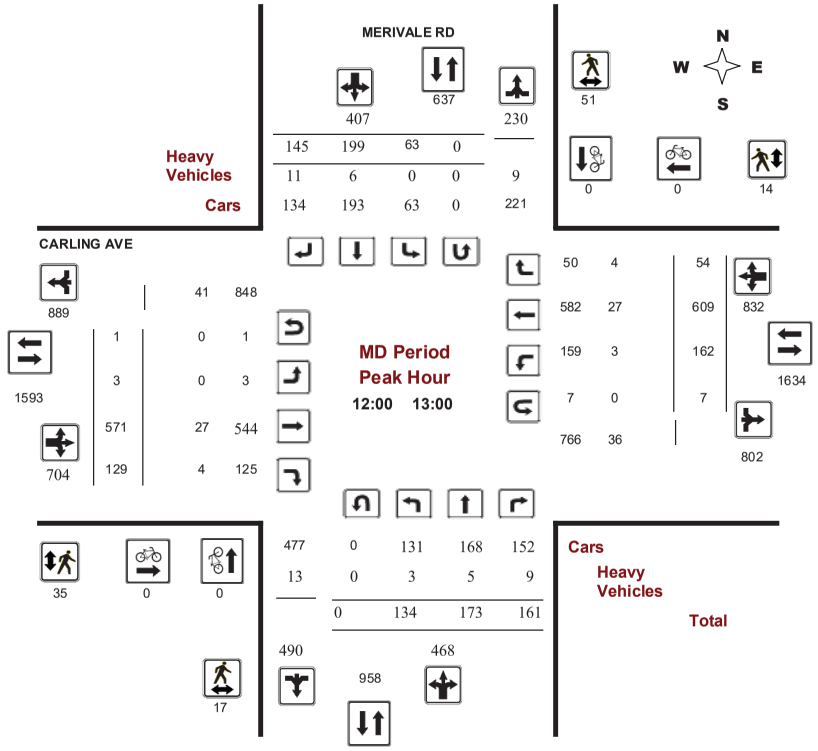
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37685

Start Time: 07:00 **Device:** Miovision



Comments

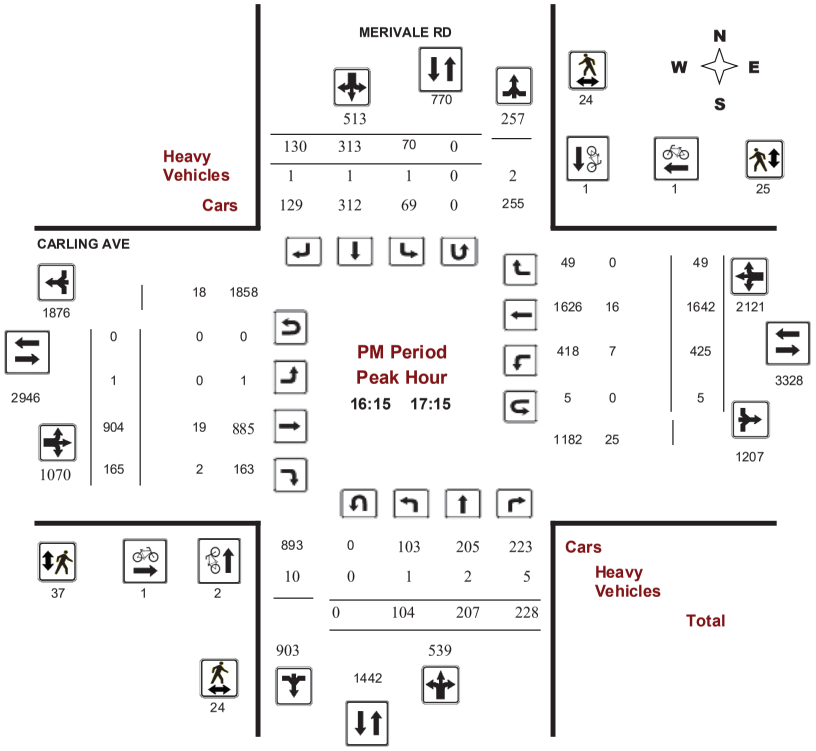
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37685

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37685

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Thursday, April 05, 2018

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 2 Westbound: 46

AADT Factor .90

	MERIVALE RD									CARLING AVE									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	78	154	299	**531**	29	251	123	**403**	**934**	0	806	73	**879**	117	328	24	**469**	**1348**	**2282**
08:00 09:00	109	229	407	**745**	36	252	132	**420**	**1165**	0	1054	82	**1136**	152	466	39	**657**	**1793**	**2958**
09:00 10:00	115	133	185	**433**	38	205	151	**394**	**827**	0	818	102	**920**	132	501	59	**692**	**1612**	**2439**
11:30 12:30	145	165	147	**457**	52	202	136	**390**	**847**	4	539	131	**674**	149	563	58	**770**	**1444**	**2291**
12:30 13:30	122	199	141	**462**	60	185	126	**371**	**833**	1	570	111	**682**	142	560	37	**739**	**1421**	**2254**
15:00 16:00	142	217	182	**541**	61	287	163	**511**	**1052**	0	540	164	**704**	284	1276	60	**1620**	**2324**	**3376**
16:00 17:00	106	209	224	**539**	67	322	137	**526**	**1065**	1	835	160	**996**	416	1632	47	**2095**	**3091**	**4156**
17:00 18:00	122	206	188	**516**	62	315	116	**493**	**1009**	0	611	133	**744**	415	1353	40	**1808**	**2552**	**3561**
Sub Total	939	1512	1773	**4224**	405	2019	1084	**3508**	**7732**	6	5773	956	**6735**	1807	6679	364	**8850**	**15585**	**23317**
U Turns				**1**				**0**	**1**				**2**				**46**	**48**	**49**
Total	939	1512	1773	**4225**	405	2019	1084	**3508**	**7733**	6	5773	956	**6737**	1807	6679	364	**8896**	**15633**	**23366**
EQ 12Hr	1305	2102	2464	**5873**	563	2806	1507	**4876**	**10749**	8	8024	1329	**9364**	2512	9284	506	**12365**	**21730**	**32479**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1107	1783	2090	**4981**	477	2380	1278	**4136**	**9674**	7	6806	1127	**7943**	2130	7875	429	**10488**	**19557**	**29231**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**0.9**					
AVG 24Hr	1450	2335	2738	**6525**	626	3118	1674	**5418**	**11943**	9	8916	1477	**10405**	2791	10316	562	**13740**	**24145**	**36088**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37685

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		MERIVALE RD									CARLING AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	16	27	56	99	11	64	32	107	353	0	150	22	172	30	59	4	94	353	472
07:15	07:30	15	37	57	109	5	62	29	96	359	0	165	15	180	31	70	9	110	359	495
07:30	07:45	16	33	89	138	8	56	27	91	378	0	237	22	259	31	88	7	126	378	614
07:45	08:00	31	57	97	185	5	69	35	109	463	0	254	14	268	25	111	4	141	463	703
08:00	08:15	27	42	109	178	7	54	33	94	426	0	292	20	312	30	98	8	137	426	721
08:15	08:30	29	71	106	206	10	61	28	99	504	0	238	19	257	38	112	10	160	504	722
08:30	08:45	29	55	109	193	10	61	38	109	483	0	304	20	324	37	116	8	161	483	787
08:45	09:00	24	61	83	168	9	76	33	118	506	0	220	23	243	47	140	13	204	506	733
09:00	09:15	29	36	54	119	7	59	47	113	406	0	254	39	293	29	119	11	159	406	684
09:15	09:30	29	32	48	109	13	53	42	108	368	0	209	20	229	29	122	17	171	368	617
09:30	09:45	23	30	40	93	10	41	32	83	332	0	195	21	216	43	151	21	216	332	608
09:45	10:00	34	35	43	112	8	52	30	90	352	0	160	22	182	31	109	10	151	352	535
11:30	11:45	28	35	38	101	8	46	35	89	343	1	144	31	176	28	145	12	186	343	552
11:45	12:00	42	46	25	113	15	54	27	96	385	0	121	34	155	32	122	10	169	385	533
12:00	12:15	41	42	46	129	12	47	27	86	410	0	150	38	188	50	157	18	226	410	629
12:15	12:30	34	42	38	114	17	55	47	119	418	3	124	28	156	39	139	18	197	418	586
12:30	12:45	29	45	40	114	13	54	30	97	390	0	154	32	186	39	160	9	210	390	607
12:45	13:00	30	44	37	111	21	43	41	105	377	0	143	31	174	34	153	9	199	377	589
13:00	13:15	26	52	33	111	13	41	25	79	358	0	138	25	163	39	138	11	190	358	543
13:15	13:30	37	58	31	126	13	47	30	90	383	1	135	23	159	30	109	8	149	383	524
15:00	15:15	32	60	47	139	19	61	44	124	500	0	98	43	142	56	276	17	352	500	757
15:15	15:30	27	49	45	121	9	67	39	115	462	0	173	37	210	60	309	13	385	462	831
15:30	15:45	47	62	46	155	15	88	39	142	591	0	129	45	174	88	367	11	467	591	938
15:45	16:00	36	46	44	126	18	71	41	130	511	0	140	39	179	80	324	19	424	511	859
16:00	16:15	33	67	57	158	20	93	34	147	603	0	124	36	160	93	362	8	463	603	928
16:15	16:30	22	47	45	114	15	69	42	126	527	0	254	44	298	110	454	17	582	527	1120
16:30	16:45	25	42	67	134	17	85	30	132	540	0	237	37	274	97	413	13	524	540	1064
16:45	17:00	26	53	55	134	15	75	31	121	552	1	220	43	264	116	403	9	530	552	1049
17:00	17:15	31	65	61	157	23	84	27	134	593	0	193	41	234	102	372	10	485	593	1010
17:15	17:30	30	52	44	126	11	88	38	137	570	0	165	37	202	118	414	12	544	570	1009
17:30	17:45	28	45	45	118	18	63	32	113	489	0	130	29	159	112	336	9	458	489	848
17:45	18:00	33	44	38	115	10	80	19	109	466	0	123	26	149	83	231	9	326	466	699
Total:		939	1512	1773	4225	405	2019	1084	3508	14398	6	5773	956	6737	1807	6679	364	8896	14398	23,366

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37685

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

Time Period		MERIVALE RD Northbound	MERIVALE RD Southbound	MERIVALE RD Street Total	CARLING AVE Eastbound	CARLING AVE Westbound	CARLING AVE Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	1	0	1	0	0	0	1
08:00	08:15	3	1	4	0	0	0	4
08:15	08:30	1	0	1	1	0	1	2
08:30	08:45	1	0	1	0	0	0	1
08:45	09:00	0	2	2	0	0	0	2
09:00	09:15	1	0	1	0	0	0	1
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	1	0	1	0	1	1	2
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	1	0	1	1
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	1	0	1	0	0	0	1
15:30	15:45	0	0	0	1	0	1	1
15:45	16:00	0	0	0	1	0	1	1
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	1	0	1	1
16:45	17:00	1	0	1	0	1	1	2
17:00	17:15	1	1	2	0	0	0	2
17:15	17:30	1	0	1	0	1	1	2
17:30	17:45	0	1	1	0	1	1	2
17:45	18:00	0	0	0	0	1	1	1
Total		12	5	**17**	5	5	10	27

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37685

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period		MERIVALE RD NB Approach (E or W Crossing)	MERIVALE RD SB Approach (E or W Crossing)	MERIVALE RD Total	CARLING AVE EB Approach (N or S Crossing)	CARLING AVE WB Approach (N or S Crossing)	CARLING AVE Total	Grand Total
07:00	07:15	3	4	**7**	5	2	**7**	**14**
07:15	07:30	1	1	**2**	1	2	**3**	**5**
07:30	07:45	4	6	**10**	5	3	**8**	**18**
07:45	08:00	5	2	**7**	2	7	**9**	**16**
08:00	08:15	4	4	**8**	0	9	**9**	**17**
08:15	08:30	3	4	**7**	4	3	**7**	**14**
08:30	08:45	9	3	**12**	5	1	**6**	**18**
08:45	09:00	8	5	**13**	6	1	**7**	**20**
09:00	09:15	2	6	**8**	4	2	**6**	**14**
09:15	09:30	6	11	**17**	7	5	**12**	**29**
09:30	09:45	4	5	**9**	2	3	**5**	**14**
09:45	10:00	0	6	**6**	4	0	**4**	**10**
11:30	11:45	4	12	**16**	2	5	**7**	**23**
11:45	12:00	1	6	**7**	4	5	**9**	**16**
12:00	12:15	1	15	**16**	9	6	**15**	**31**
12:15	12:30	8	11	**19**	6	1	**7**	**26**
12:30	12:45	4	12	**16**	8	3	**11**	**27**
12:45	13:00	4	13	**17**	12	4	**16**	**33**
13:00	13:15	15	14	**29**	9	7	**16**	**45**
13:15	13:30	0	7	**7**	4	1	**5**	**12**
15:00	15:15	0	12	**12**	3	8	**11**	**23**
15:15	15:30	3	8	**11**	4	0	**4**	**15**
15:30	15:45	12	9	**21**	11	13	**24**	**45**
15:45	16:00	3	7	**10**	6	5	**11**	**21**
16:00	16:15	1	10	**11**	13	6	**19**	**30**
16:15	16:30	2	8	**10**	5	2	**7**	**17**
16:30	16:45	15	7	**22**	13	11	**24**	**46**
16:45	17:00	2	4	**6**	9	2	**11**	**17**
17:00	17:15	5	5	**10**	10	10	**20**	**30**
17:15	17:30	3	7	**10**	8	3	**11**	**21**
17:30	17:45	13	11	**24**	12	4	**16**	**40**
17:45	18:00	5	13	**18**	7	14	**21**	**39**
Total	.....	150	248	**398**	200	148	**348**	**746**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37685

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		MERIVALE RD									CARLING AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	1	**3**	0	0	0	**0**	**3**	0	3	1	**8**	1	4	0	**9**	**17**	**10**
07:15	07:30	1	0	1	**4**	1	0	1	**2**	**6**	0	5	1	**13**	1	5	0	**13**	**26**	**16**
07:30	07:45	1	0	3	**9**	0	0	0	**0**	**9**	0	4	2	**13**	3	6	0	**16**	**29**	**19**
07:45	08:00	1	0	3	**9**	0	0	0	**0**	**9**	0	6	1	**19**	4	11	0	**24**	**43**	**26**
08:00	08:15	0	0	2	**5**	0	1	1	**2**	**7**	0	9	1	**20**	1	9	0	**21**	**41**	**24**
08:15	08:30	3	0	3	**11**	0	0	1	**1**	**12**	0	8	1	**18**	4	5	0	**20**	**38**	**25**
08:30	08:45	3	2	2	**11**	0	0	0	**2**	**13**	0	7	2	**17**	2	5	0	**16**	**33**	**23**
08:45	09:00	5	1	3	**13**	0	1	1	**3**	**16**	0	4	1	**14**	2	3	0	**12**	**26**	**21**
09:00	09:15	1	0	1	**3**	0	0	1	**1**	**4**	0	9	0	**21**	1	10	0	**21**	**42**	**23**
09:15	09:30	2	1	1	**7**	2	1	0	**4**	**11**	0	6	1	**13**	1	4	0	**14**	**27**	**19**
09:30	09:45	0	0	0	**3**	0	1	2	**4**	**7**	0	6	1	**19**	1	10	1	**18**	**37**	**22**
09:45	10:00	0	2	0	**4**	0	0	2	**4**	**8**	0	5	1	**15**	1	7	0	**13**	**28**	**18**
11:30	11:45	1	1	0	**5**	0	1	1	**3**	**8**	0	9	0	**17**	2	6	0	**17**	**34**	**21**
11:45	12:00	0	2	1	**6**	0	1	2	**5**	**11**	0	4	0	**12**	2	6	0	**13**	**25**	**18**
12:00	12:15	1	0	2	**4**	0	0	3	**4**	**8**	0	10	0	**19**	1	5	1	**19**	**38**	**23**
12:15	12:30	0	1	4	**9**	0	2	1	**5**	**14**	0	4	0	**14**	2	9	1	**20**	**34**	**24**
12:30	12:45	1	2	1	**6**	0	1	2	**6**	**12**	0	7	1	**17**	0	6	1	**15**	**32**	**22**
12:45	13:00	1	2	2	**11**	0	3	5	**11**	**22**	0	6	3	**22**	0	7	1	**16**	**38**	**30**
13:00	13:15	0	2	1	**5**	1	1	1	**5**	**10**	0	9	0	**15**	1	5	0	**17**	**32**	**21**
13:15	13:30	0	1	1	**4**	0	1	1	**3**	**7**	0	8	0	**12**	1	3	0	**13**	**25**	**16**
15:00	15:15	0	1	0	**1**	0	0	2	**3**	**4**	0	5	0	**12**	0	5	0	**10**	**22**	**13**
15:15	15:30	1	1	0	**7**	0	1	0	**2**	**9**	0	6	3	**15**	1	5	0	**12**	**27**	**18**
15:30	15:45	1	0	2	**4**	0	1	0	**1**	**5**	0	2	0	**9**	0	6	0	**10**	**19**	**12**
15:45	16:00	0	0	3	**5**	0	0	1	**2**	**7**	0	6	1	**13**	1	5	1	**16**	**29**	**18**
16:00	16:15	1	2	1	**7**	0	0	1	**3**	**10**	0	4	0	**8**	3	2	0	**10**	**18**	**14**
16:15	16:30	0	0	0	**3**	1	1	0	**2**	**5**	0	6	0	**12**	2	6	0	**15**	**27**	**16**
16:30	16:45	1	0	3	**7**	0	0	0	**0**	**7**	0	4	1	**9**	2	3	0	**12**	**21**	**14**
16:45	17:00	0	2	0	**2**	0	0	1	**3**	**5**	0	5	0	**9**	0	3	0	**8**	**17**	**11**
17:00	17:15	0	0	2	**6**	0	0	0	**0**	**6**	0	4	1	**9**	3	4	0	**13**	**22**	**14**
17:15	17:30	2	0	0	**4**	0	0	1	**1**	**5**	0	3	0	**8**	2	2	0	**7**	**15**	**10**
17:30	17:45	0	0	1	**3**	0	0	0	**0**	**3**	0	6	0	**11**	2	5	0	**14**	**25**	**14**
17:45	18:00	0	0	2	**4**	0	0	1	**1**	**5**	0	3	0	**7**	2	3	0	**10**	**17**	**11**
Total:	None	27	23	46	**185**	5	17	32	**83**	**268**	0	183	23	**440**	49	175	6	**464**	**904**	**586**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, April 05, 2018 **WO No:** 37685

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

		MERIVALE RD	MERIVALE RD	CARLING AVE	CARLING AVE	
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	1	1
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	1	1
08:00	08:15	0	0	0	1	1
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	4	4
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	3	3
09:30	09:45	0	0	0	1	1
09:45	10:00	0	0	0	1	1
11:30	11:45	0	0	0	1	1
11:45	12:00	0	0	0	5	5
12:00	12:15	0	0	0	1	1
12:15	12:30	0	0	1	1	2
12:30	12:45	0	0	0	2	2
12:45	13:00	0	0	0	3	3
13:00	13:15	0	0	0	2	2
13:15	13:30	0	0	0	2	2
15:00	15:15	0	0	1	3	4
15:15	15:30	0	0	0	3	3
15:30	15:45	0	0	0	1	1
15:45	16:00	0	0	0	1	1
16:00	16:15	1	0	0	0	1
16:15	16:30	0	0	0	1	1
16:30	16:45	0	0	0	1	1
16:45	17:00	0	0	0	2	2
17:00	17:15	0	0	0	1	1
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	1	1
17:45	18:00	0	0	0	3	3
Total		1	0	2	46	49

Transportation Services - Traffic Services

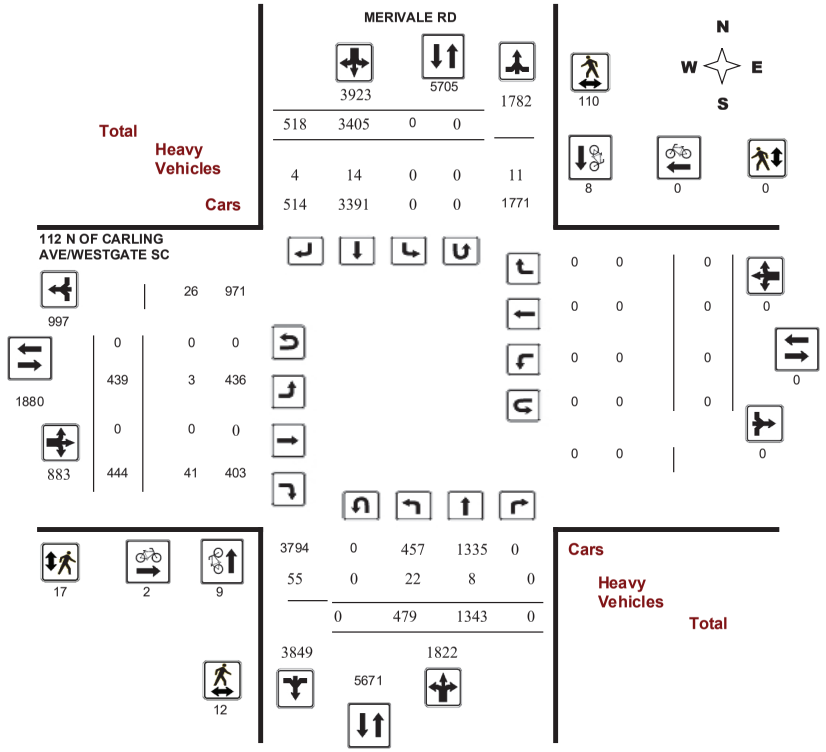
Turning Movement Count - Study Results

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Survey Date: Wednesday, March 21, 2018 **WO No:** 37625

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

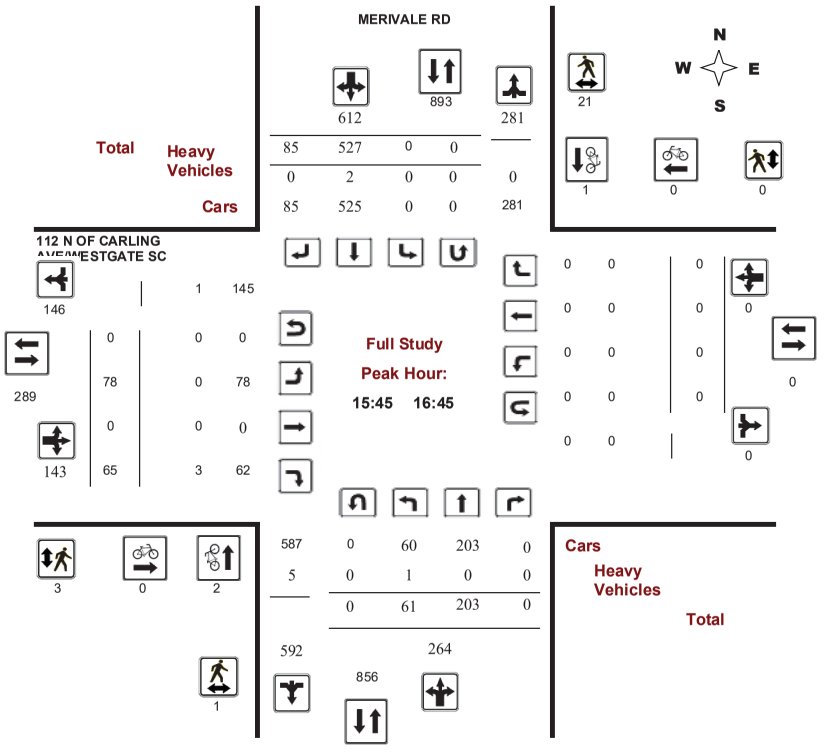
Turning Movement Count - Study Results

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Survey Date: Wednesday, March 21, 2018 **WO No:** 37625

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



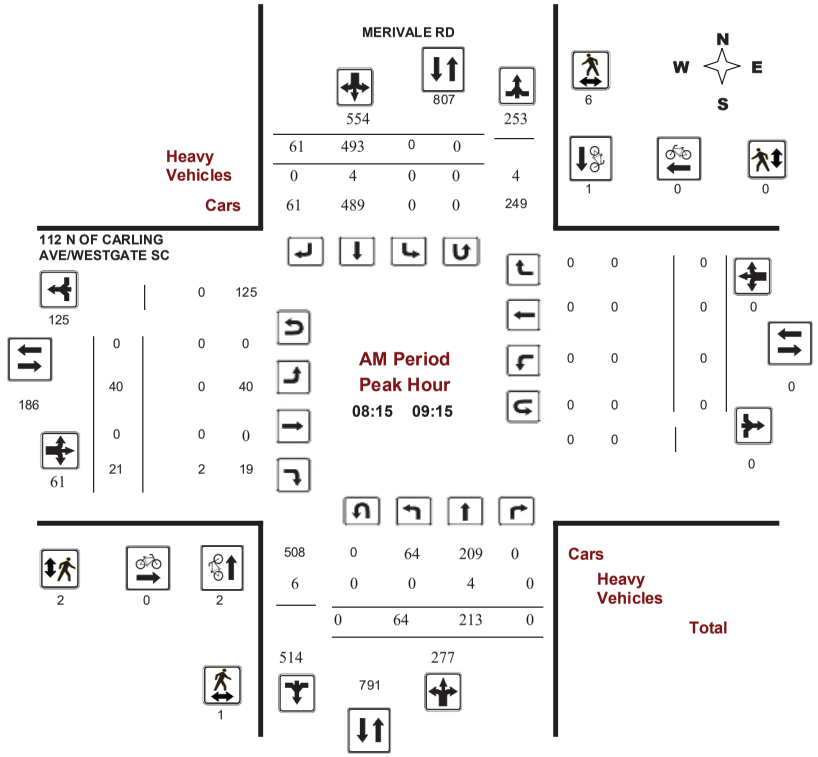
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Survey Date: Wednesday, March 21, 2018 **WO No:** 37625

Start Time: 07:00 **Device:** Miovision



Comments

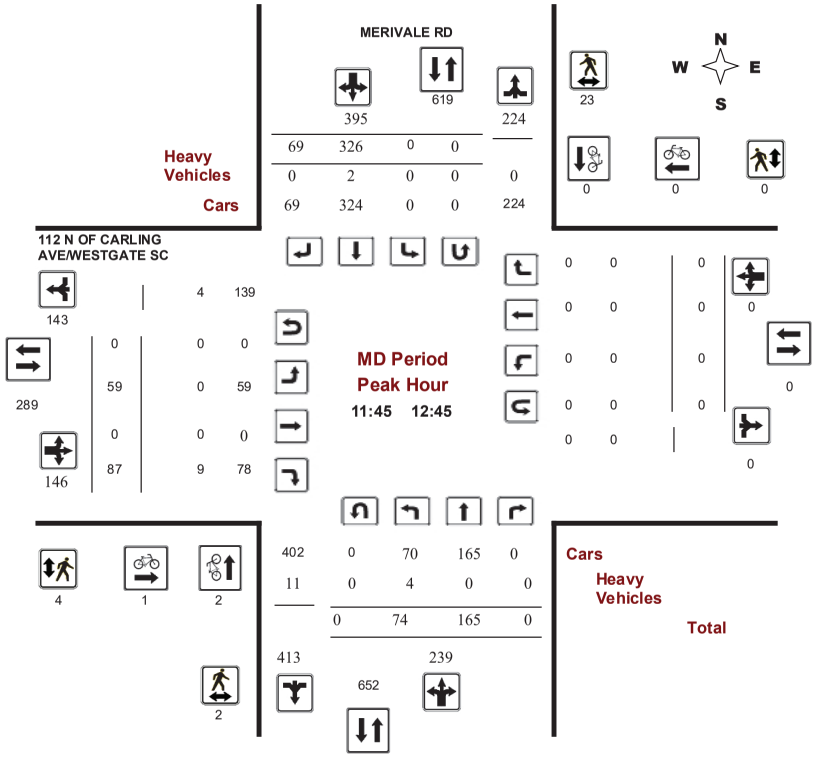
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Survey Date: Wednesday, March 21, 2018 **WO No:** 37625

Start Time: 07:00 **Device:** Miovision



Comments

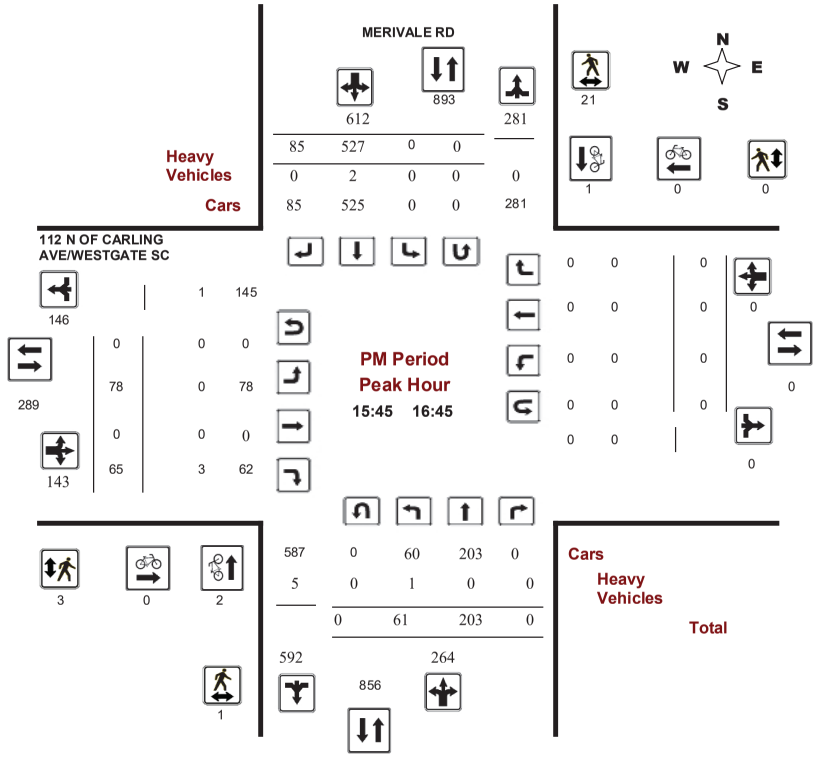
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Survey Date: Wednesday, March 21, 2018 **WO No:** 37625

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Survey Date: Wednesday, March 21, 2018 **WO No:** 37625

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 21, 2018

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor 1.00

	MERIVALE RD								112 N OF CARLING AVE/WESTGATE SC								
	Northbound				Southbound				Eastbound				Westbound				
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	40	125	0	**165**	0	462	48	**510**	**675**	24	0	15	**39**	0	0	0	**0**	**39**	**714**
08:00 09:00	57	216	0	**273**	0	500	52	**552**	**825**	43	0	18	**61**	0	0	0	**0**	**61**	**886**
09:00 10:00	96	108	0	**204**	0	434	67	**501**	**705**	36	0	42	**78**	0	0	0	**0**	**78**	**783**
11:30 12:30	75	155	0	**230**	0	328	75	**403**	**633**	59	0	84	**143**	0	0	0	**0**	**143**	**776**
12:30 13:30	66	158	0	**224**	0	276	66	**342**	**566**	64	0	93	**157**	0	0	0	**0**	**157**	**723**
15:00 16:00	55	204	0	**259**	0	473	84	**557**	**816**	66	0	77	**143**	0	0	0	**0**	**143**	**959**
16:00 17:00	51	206	0	**257**	0	514	76	**590**	**847**	77	0	62	**139**	0	0	0	**0**	**139**	**986**
17:00 18:00	39	171	0	**210**	0	418	50	**468**	**678**	70	0	53	**123**	0	0	0	**0**	**123**	**801**
Sub Total	479	1343	0	**1822**	0	3405	518	**3923**	**5745**	439	0	444	**883**	0	0	0	**0**	**883**	**6628**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	479	1343	0	**1822**	0	3405	518	**3923**	**5745**	439	0	444	**883**	0	0	0	**0**	**883**	**6628**
EQ 12Hr	666	1867	0	**2533**	0	4733	720	**5453**	**7986**	610	0	617	**1227**	0	0	0	**0**	**1227**	**9213**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	627	1759	0	**2387**	0	4461	679	**5139**	**7986**	575	0	582	**1157**	0	0	0	**0**	**1227**	**9213**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	822	2305	0	**3127**	0	5843	889	**6732**	**9859**	753	0	762	**1515**	0	0	0	**0**	**1515**	**11374**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Survey Date: Wednesday, March 21, 2018 **WO No:** 37625

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		MERIVALE RD									112 N OF CARLING AVE/WESTGATE SC									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	4	26	0	30	0	108	12	120	290	3	0	3	6	0	0	0	0	290	156
07:15	07:30	11	29	0	40	0	104	8	112	291	4	0	2	6	0	0	0	0	291	158
07:30	07:45	8	24	0	32	0	130	13	143	340	9	0	2	11	0	0	0	0	340	186
07:45	08:00	17	46	0	63	0	120	15	135	380	8	0	8	16	0	0	0	0	380	214
08:00	08:15	12	45	0	57	0	137	9	146	398	11	0	2	13	0	0	0	0	398	216
08:15	08:30	9	51	0	60	0	133	15	148	407	9	0	6	15	0	0	0	0	407	223
08:30	08:45	13	51	0	64	0	114	7	121	368	13	0	5	18	0	0	0	0	368	203
08:45	09:00	23	69	0	92	0	116	21	137	429	10	0	5	15	0	0	0	0	429	244
09:00	09:15	19	42	0	61	0	130	18	148	394	8	0	5	13	0	0	0	0	394	222
09:15	09:30	20	25	0	45	0	113	10	123	326	7	0	13	20	0	0	0	0	326	188
09:30	09:45	28	22	0	50	0	109	19	128	328	8	0	11	19	0	0	0	0	328	197
09:45	10:00	29	19	0	48	0	82	20	102	277	13	0	13	26	0	0	0	0	277	176
11:30	11:45	17	31	0	48	0	74	18	92	285	17	0	23	40	0	0	0	0	285	180
11:45	12:00	18	40	0	58	0	86	19	105	325	18	0	18	36	0	0	0	0	325	199
12:00	12:15	22	33	0	55	0	90	19	109	329	13	0	29	42	0	0	0	0	329	206
12:15	12:30	18	51	0	69	0	78	19	97	320	11	0	14	25	0	0	0	0	320	191
12:30	12:45	16	41	0	57	0	72	12	84	297	17	0	26	43	0	0	0	0	297	184
12:45	13:00	17	41	0	58	0	62	17	79	284	22	0	22	44	0	0	0	0	284	181
13:00	13:15	20	37	0	57	0	80	21	101	305	9	0	21	30	0	0	0	0	305	188
13:15	13:30	13	39	0	52	0	62	16	78	271	16	0	24	40	0	0	0	0	271	170
15:00	15:15	13	59	0	72	0	110	18	128	408	19	0	20	39	0	0	0	0	408	239
15:15	15:30	9	44	0	53	0	133	23	156	412	12	0	14	26	0	0	0	0	412	235
15:30	15:45	15	59	0	74	0	118	19	137	428	19	0	21	40	0	0	0	0	428	251
15:45	16:00	18	42	0	60	0	112	24	136	388	16	0	22	38	0	0	0	0	388	234
16:00	16:15	18	54	0	72	0	136	23	159	460	25	0	14	39	0	0	0	0	460	270
16:15	16:30	14	51	0	65	0	134	18	152	434	20	0	12	32	0	0	0	0	434	249
16:30	16:45	11	56	0	67	0	145	20	165	467	17	0	17	34	0	0	0	0	467	266
16:45	17:00	8	45	0	53	0	99	15	114	345	15	0	19	34	0	0	0	0	345	201
17:00	17:15	9	35	0	44	0	99	18	117	331	21	0	15	36	0	0	0	0	331	197
17:15	17:30	14	44	0	58	0	132	14	146	408	13	0	15	28	0	0	0	0	408	232
17:30	17:45	5	41	0	46	0	107	10	117	343	21	0	11	32	0	0	0	0	343	195
17:45	18:00	11	51	0	62	0	80	8	88	308	15	0	12	27	0	0	0	0	308	177
Total:		479	1343	0	1822	0	3405	518	3923	11376	439	0	444	883	0	0	0	0	11376	6,628

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Survey Date: Wednesday, March 21, 2018 **WO No:** 37625

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		MERIVALE RD			112 N OF CARLING AVE/WESTGATE SC			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	3	3	0	0	0	3
08:00	08:15	0	2	2	0	0	0	2
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	2	1	3	0	0	0	3
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	1	0	1	0	0	0	1
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	1	0	1	1	0	1	2
12:30	12:45	1	0	1	0	0	0	1
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	1	1	0	0	0	1
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	1	0	1	0	0	0	1
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	1	1	2	0	0	0	2
16:45	17:00	1	0	1	0	0	0	1
17:00	17:15	0	0	0	1	0	1	1
17:15	17:30	1	0	1	0	0	0	1
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total		9	8	17	2	0	2	19

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Survey Date: Wednesday, March 21, 2018 **WO No:** 37625

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

		MERIVALE RD			112 N OF CARLING AVE/WESTGATE SC			
Time Period		NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	1	**1**	1	0	**1**	**2**
07:30	07:45	0	0	**0**	0	0	**0**	**0**
07:45	08:00	0	1	**1**	0	0	**0**	**1**
08:00	08:15	0	3	**3**	1	0	**1**	**4**
08:15	08:30	1	2	**3**	1	0	**1**	**4**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
08:45	09:00	0	2	**2**	0	0	**0**	**2**
09:00	09:15	0	2	**2**	1	0	**1**	**3**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	1	5	**6**	3	0	**3**	**9**
09:45	10:00	2	2	**4**	1	0	**1**	**5**
11:30	11:45	0	5	**5**	0	0	**0**	**5**
11:45	12:00	1	4	**5**	0	0	**0**	**5**
12:00	12:15	0	3	**3**	1	0	**1**	**4**
12:15	12:30	1	10	**11**	3	0	**3**	**14**
12:30	12:45	0	6	**6**	0	0	**0**	**6**
12:45	13:00	2	9	**11**	0	0	**0**	**11**
13:00	13:15	1	5	**6**	0	0	**0**	**6**
13:15	13:30	0	4	**4**	1	0	**1**	**5**
15:00	15:15	1	3	**4**	0	0	**0**	**4**
15:15	15:30	1	1	**2**	0	0	**0**	**2**
15:30	15:45	0	3	**3**	0	0	**0**	**3**
15:45	16:00	1	3	**4**	1	0	**1**	**5**
16:00	16:15	0	10	**10**	2	0	**2**	**12**
16:15	16:30	0	5	**5**	0	0	**0**	**5**
16:30	16:45	0	3	**3**	0	0	**0**	**3**
16:45	17:00	0	3	**3**	0	0	**0**	**3**
17:00	17:15	0	6	**6**	1	0	**1**	**7**
17:15	17:30	0	4	**4**	0	0	**0**	**4**
17:30	17:45	0	3	**3**	0	0	**0**	**3**
17:45	18:00	0	2	**2**	0	0	**0**	**2**
Total		12	110	**122**	17	0	**17**	**139**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Survey Date: Wednesday, March 21, 2018 **WO No:** 37625

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		MERIVALE RD									112 N OF CARLING AVE/WESTGATE SC									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	**0**	0	0	0	**1**	**1**	1	0	0	**1**	0	0	0	**0**	**1**	**1**
07:15	07:30	0	1	0	**3**	0	1	0	**2**	**5**	0	0	1	**1**	0	0	0	**0**	**1**	**3**
07:30	07:45	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
07:45	08:00	1	0	0	**2**	0	0	0	**0**	**2**	0	0	1	**2**	0	0	0	**0**	**2**	**2**
08:00	08:15	0	0	0	**2**	0	2	0	**3**	**5**	1	0	0	**1**	0	0	0	**0**	**1**	**3**
08:15	08:30	0	2	0	**3**	0	1	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
08:30	08:45	0	2	0	**3**	0	0	0	**2**	**5**	0	0	1	**1**	0	0	0	**0**	**1**	**3**
08:45	09:00	0	0	0	**3**	0	2	0	**2**	**5**	0	0	1	**1**	0	0	0	**0**	**1**	**3**
09:00	09:15	0	0	0	**1**	0	1	0	**1**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**1**
09:15	09:30	1	0	0	**3**	0	0	0	**0**	**3**	0	0	2	**3**	0	0	0	**0**	**3**	**3**
09:30	09:45	0	0	0	**3**	0	0	1	**1**	**4**	0	0	3	**4**	0	0	0	**0**	**4**	**4**
09:45	10:00	3	0	0	**6**	0	1	0	**1**	**7**	0	0	2	**5**	0	0	0	**0**	**5**	**6**
11:30	11:45	2	0	0	**7**	0	1	0	**1**	**8**	0	0	4	**6**	0	0	0	**0**	**6**	**7**
11:45	12:00	1	0	0	**4**	0	0	0	**0**	**4**	0	0	3	**4**	0	0	0	**0**	**4**	**4**
12:00	12:15	1	0	0	**5**	0	1	0	**1**	**6**	0	0	3	**4**	0	0	0	**0**	**4**	**5**
12:15	12:30	1	0	0	**3**	0	1	0	**1**	**4**	0	0	1	**2**	0	0	0	**0**	**2**	**3**
12:30	12:45	1	0	0	**3**	0	0	0	**0**	**3**	0	0	2	**3**	0	0	0	**0**	**3**	**3**
12:45	13:00	1	0	0	**3**	0	0	0	**0**	**3**	0	0	2	**3**	0	0	0	**0**	**3**	**3**
13:00	13:15	1	0	0	**5**	0	0	0	**0**	**5**	0	0	4	**5**	0	0	0	**0**	**5**	**5**
13:15	13:30	2	1	0	**5**	0	0	0	**1**	**6**	0	0	2	**4**	0	0	0	**0**	**4**	**5**
15:00	15:15	3	0	0	**5**	0	0	0	**0**	**5**	0	0	2	**5**	0	0	0	**0**	**5**	**5**
15:15	15:30	2	0	0	**3**	0	0	0	**0**	**3**	0	0	1	**3**	0	0	0	**0**	**3**	**3**
15:30	15:45	0	1	0	**3**	0	1	0	**2**	**5**	0	0	1	**1**	0	0	0	**0**	**1**	**3**
15:45	16:00	0	0	0	**1**	0	0	0	**0**	**1**	0	0	1	**1**	0	0	0	**0**	**1**	**1**
16:00	16:15	1	0	0	**3**	0	1	0	**1**	**4**	0	0	1	**2**	0	0	0	**0**	**2**	**3**
16:15	16:30	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
16:30	16:45	0	0	0	**2**	0	1	0	**1**	**3**	0	0	1	**1**	0	0	0	**0**	**1**	**2**
16:45	17:00	0	0	0	**0**	0	0	1	**1**	**1**	0	0	0	**1**	0	0	0	**0**	**1**	**1**
17:00	17:15	0	0	0	**1**	0	0	1	**2**	**3**	1	0	1	**3**	0	0	0	**0**	**3**	**3**
17:15	17:30	1	0	0	**1**	0	0	1	**1**	**2**	0	0	0	**2**	0	0	0	**0**	**2**	**2**
17:30	17:45	0	0	0	**1**	0	0	0	**0**	**1**	0	0	1	**1**	0	0	0	**0**	**1**	**1**
17:45	18:00	0	1	0	**1**	0	0	0	**1**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**1**
Total:	None	22	8	0	**85**	0	14	4	**29**	**114**	3	0	41	**70**	0	0	0	**0**	**70**	**92**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Survey Date: Wednesday, March 21, 2018 **WO No:** 37625

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		MERIVALE RD Northbound U-Turn Total	MERIVALE RD Southbound U-Turn Total	112 N OF CARLING AVE/WESTGATE SC Eastbound U-Turn Total	112 N OF CARLING AVE/WESTGATE SC Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

Transportation Services - Traffic Services

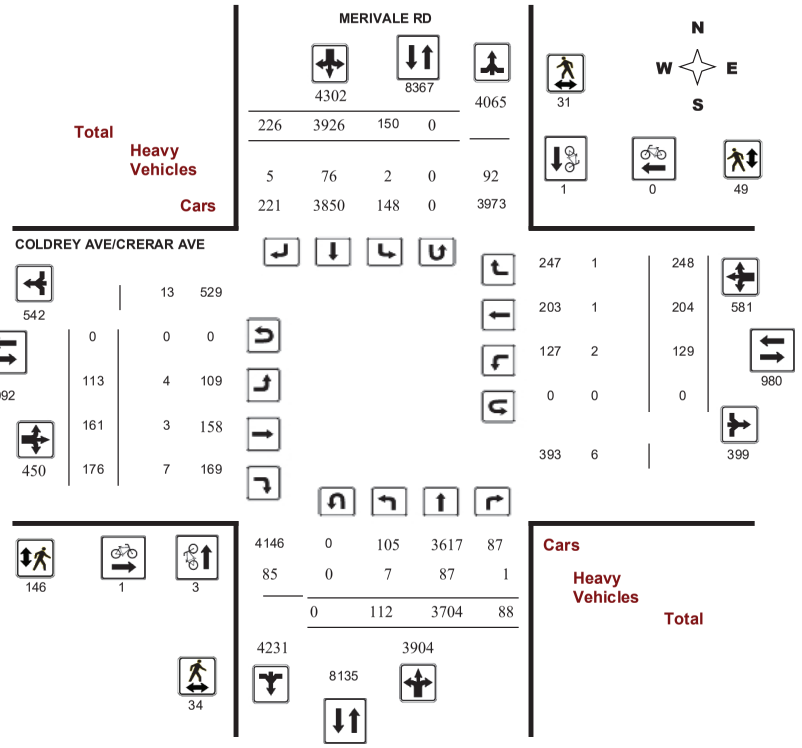
Turning Movement Count - Study Results

MERIVALE RD @ COLDREY AVE/CRERAR AVE

Survey Date: Wednesday, January 31, 2018 **WO No:** 37475

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

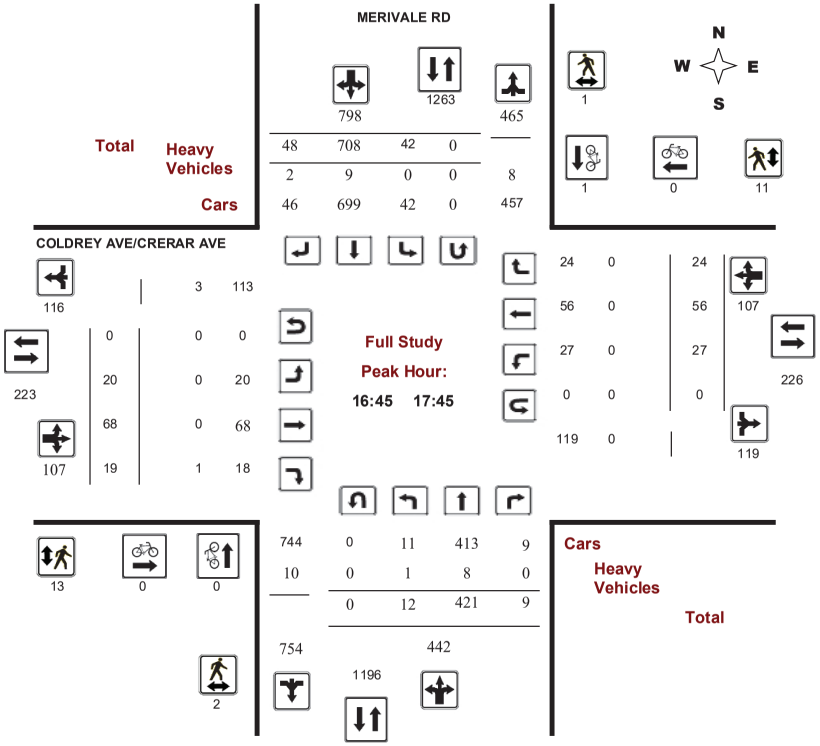
Turning Movement Count - Study Results

MERIVALE RD @ COLDREY AVE/CRERAR AVE

Survey Date: Wednesday, January 31, 2018 **WO No:** 37475

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



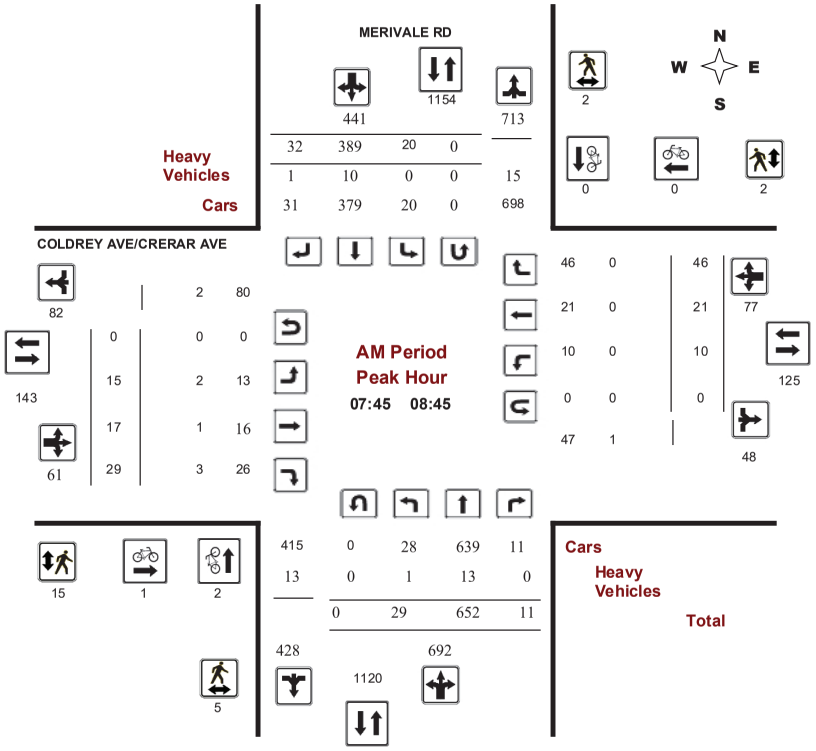
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD @ COLDREY AVE/CRERAR AVE

Survey Date: Wednesday, January 31, 2018 **WO No:** 37475

Start Time: 07:00 **Device:** Miovision



Comments

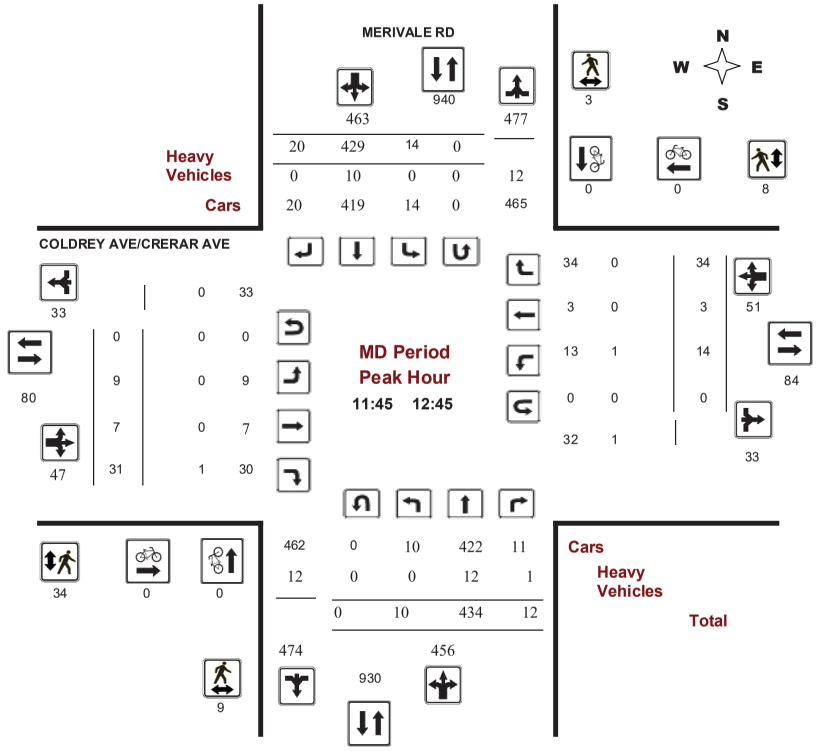
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD @ COLDREY AVE/CRERAR AVE

Survey Date: Wednesday, January 31, 2018 **WO No:** 37475

Start Time: 07:00 **Device:** Miovision



Comments

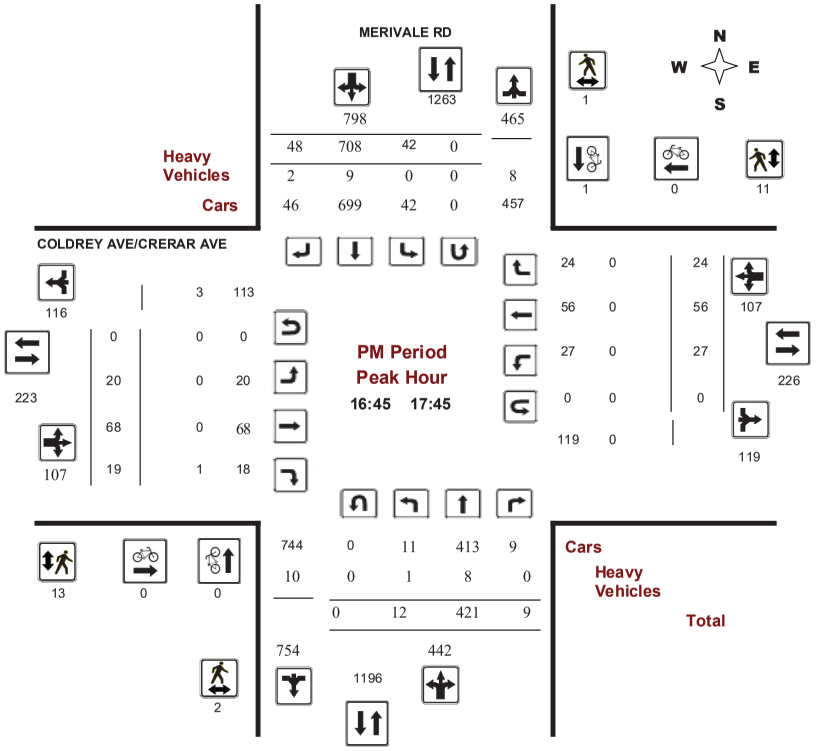
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD @ COLDREY AVE/CRERAR AVE

Survey Date: Wednesday, January 31, 2018 **WO No:** 37475

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ COLDREY AVE/CRERAR AVE

Survey Date: Wednesday, January 31, 2018 **WO No:** 37475

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, January 31, 201

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor 1.39

	MERIVALE RD								COLDREY AVE/CRERAR AVE								
	Northbound				Southbound				Eastbound				Westbound				
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	21	530	9	**560**	14	390	28	**432**	**992**	12	8	21	**41**	8	14	35	**57**	**98**	**1090**
08:00 09:00	21	637	13	**671**	22	394	31	**447**	**1118**	14	24	22	**60**	10	20	45	**75**	**135**	**1253**
09:00 10:00	13	371	17	**401**	17	346	16	**379**	**780**	12	7	19	**38**	17	12	24	**53**	**91**	**871**
11:30 12:30	13	426	12	**451**	9	424	22	**455**	**906**	6	10	29	**45**	16	6	38	**60**	**105**	**1011**
12:30 13:30	11	409	13	**433**	17	399	19	**435**	**868**	12	3	25	**40**	7	11	18	**36**	**76**	**944**
15:00 16:00	11	465	9	**485**	11	564	25	**600**	**1085**	15	13	23	**51**	13	32	33	**78**	**129**	**1214**
16:00 17:00	12	481	3	**496**	18	701	41	**760**	**1256**	24	35	16	**75**	30	37	34	**101**	**176**	**1432**
17:00 18:00	10	385	12	**407**	42	708	44	**794**	**1201**	18	61	21	**100**	28	72	21	**121**	**221**	**1422**
Sub Total	112	3704	88	**3904**	150	3926	226	**4302**	**8206**	113	161	176	**450**	129	204	248	**581**	**1031**	**9237**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	112	3704	88	**3904**	150	3926	226	**4302**	**8206**	113	161	176	**450**	129	204	248	**581**	**1031**	**9237**
EQ 12Hr	156	5149	122	**5427**	208	5457	314	**5980**	**11406**	157	224	245	**626**	179	284	345	**808**	**1433**	**12839**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	156	5149	122	**5427**	208	5457	314	**5980**	**11406**	157	224	245	**626**	179	284	345	**808**	**1433**	**12839**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	204	6745	160	**7109**	273	7149	412	**7834**	**14943**	206	293	320	**819**	235	371	452	**1058**	**1877**	**16820**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ COLDREY AVE/CRERAR AVE

Survey Date: Wednesday, January 31, 2018 **WO No:** 37475

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		MERIVALE RD									COLDREY AVE/CRERAR AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	1	86	0	87	3	90	1	94	365	2	3	1	6	0	2	5	7	365	194
07:15	07:30	4	127	3	134	3	98	10	111	483	1	1	3	5	1	5	8	14	483	264
07:30	07:45	5	145	2	152	3	93	6	102	516	5	1	5	11	3	4	11	18	516	283
07:45	08:00	11	172	4	187	5	109	11	125	624	4	3	12	19	4	3	11	18	624	349
08:00	08:15	7	141	2	150	3	69	7	79	464	2	5	8	15	2	7	13	22	464	266
08:15	08:30	4	165	2	171	8	114	9	131	597	4	4	3	11	2	5	7	14	597	327
08:30	08:45	7	174	3	184	4	97	5	106	589	5	5	6	16	2	6	15	23	589	329
08:45	09:00	3	157	6	166	7	114	10	131	590	3	10	5	18	4	2	10	16	590	331
09:00	09:15	3	116	4	123	4	80	3	87	429	4	2	11	17	2	2	6	10	429	237
09:15	09:30	4	84	7	95	8	91	4	103	391	2	4	1	7	6	1	9	16	391	221
09:30	09:45	3	89	5	97	4	96	4	104	400	4	1	2	7	3	5	5	13	400	221
09:45	10:00	3	82	1	86	1	79	5	85	349	2	0	5	7	6	4	4	14	349	192
11:30	11:45	4	104	3	111	1	89	5	95	417	1	4	4	9	4	3	9	16	417	231
11:45	12:00	4	105	1	110	2	107	7	116	459	1	1	9	11	2	0	9	11	459	248
12:00	12:15	4	104	4	112	2	122	7	131	498	2	2	11	15	7	1	9	17	498	275
12:15	12:30	1	113	4	118	4	106	3	113	471	2	3	5	10	3	2	11	16	471	257
12:30	12:45	1	112	3	116	6	94	3	103	442	4	1	6	11	2	0	5	7	442	237
12:45	13:00	6	97	5	108	5	100	5	110	427	2	1	5	8	1	3	4	8	427	234
13:00	13:15	1	119	4	124	3	110	5	118	481	1	1	5	7	0	5	4	9	481	258
13:15	13:30	3	81	1	85	3	95	6	104	388	5	0	9	14	4	3	5	12	388	215
15:00	15:15	3	120	1	124	2	128	6	136	540	3	0	10	13	4	6	15	25	540	298
15:15	15:30	0	115	3	118	4	151	7	162	561	4	3	6	13	2	11	3	16	561	309
15:30	15:45	5	112	3	120	3	134	4	141	529	5	8	3	16	2	7	12	21	529	298
15:45	16:00	3	118	2	123	2	151	8	161	568	3	2	4	9	5	8	3	16	568	309
16:00	16:15	3	133	0	136	4	178	12	194	666	5	2	2	9	10	11	8	29	666	368
16:15	16:30	1	121	1	123	4	176	10	190	630	6	8	3	17	4	12	7	23	630	353
16:30	16:45	2	105	1	108	4	164	5	173	586	8	14	7	29	10	9	11	30	586	340
16:45	17:00	6	122	1	129	6	183	14	203	660	5	11	4	20	6	5	8	19	660	371
17:00	17:15	1	104	4	109	10	169	14	193	592	2	14	4	20	5	21	6	32	592	354
17:15	17:30	2	94	2	98	17	169	10	196	586	6	23	8	37	9	14	6	29	586	360
17:30	17:45	3	101	2	106	9	187	10	206	621	7	20	3	30	7	16	4	27	621	369
17:45	18:00	4	86	4	94	6	183	10	199	583	3	4	6	13	7	21	5	33	583	339
Total:		112	3704	88	3904	150	3926	226	4302	16502	113	161	176	450	129	204	248	581	16502	9,237

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ COLDREY AVE/CRERAR AVE

Survey Date: Wednesday, January 31, 2018 **WO No:** 37475

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

Time Period		MERIVALE RD			COLDREY AVE/CRERAR AVE			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	1	0	1	0	0	0	1
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	1	0	1	0	0	0	1
08:00	08:15	1	0	1	0	0	0	1
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	1	0	1	1
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	1	1	0	0	0	1
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total		3	1	**4**	1	0	1	5

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ COLDREY AVE/CRERAR AVE

Survey Date: Wednesday, January 31, 2018 **WO No:** 37475

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period	MERIVALE RD			COLDREY AVE/CRERAR AVE			
	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	**0**	3	2	**5**	**5**
07:15 07:30	0	3	**3**	4	2	**6**	**9**
07:30 07:45	0	1	**1**	4	0	**4**	**5**
07:45 08:00	2	1	**3**	2	0	**2**	**5**
08:00 08:15	3	1	**4**	6	0	**6**	**10**
08:15 08:30	0	0	**0**	4	0	**4**	**4**
08:30 08:45	0	0	**0**	3	2	**5**	**5**
08:45 09:00	0	1	**1**	2	2	**4**	**5**
09:00 09:15	1	1	**2**	4	3	**7**	**9**
09:15 09:30	3	4	**7**	5	2	**7**	**14**
09:30 09:45	3	1	**4**	5	2	**7**	**11**
09:45 10:00	1	0	**1**	7	2	**9**	**10**
11:30 11:45	2	2	**4**	9	0	**9**	**13**
11:45 12:00	2	1	**3**	10	0	**10**	**13**
12:00 12:15	6	0	**6**	3	6	**9**	**15**
12:15 12:30	1	0	**1**	8	0	**8**	**9**
12:30 12:45	0	2	**2**	13	2	**15**	**17**
12:45 13:00	2	0	**2**	5	1	**6**	**8**
13:00 13:15	1	0	**1**	4	4	**8**	**9**
13:15 13:30	0	1	**1**	5	0	**5**	**6**
15:00 15:15	0	1	**1**	3	1	**4**	**5**
15:15 15:30	2	2	**4**	2	3	**5**	**9**
15:30 15:45	0	3	**3**	4	0	**4**	**7**
15:45 16:00	1	1	**2**	2	3	**5**	**7**
16:00 16:15	0	1	**1**	5	1	**6**	**7**
16:15 16:30	1	1	**2**	2	0	**2**	**4**
16:30 16:45	1	0	**1**	4	0	**4**	**5**
16:45 17:00	1	0	**1**	3	3	**6**	**7**
17:00 17:15	0	1	**1**	3	1	**4**	**5**
17:15 17:30	0	0	**0**	4	4	**8**	**8**
17:30 17:45	1	0	**1**	3	3	**6**	**7**
17:45 18:00	0	2	**2**	5	0	**5**	**7**
Total	34	31	**65**	146	49	**195**	**260**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ COLDREY AVE/CRERAR AVE

Survey Date: Wednesday, January 31, 2018 **WO No:** 37475

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		MERIVALE RD									COLDREY AVE/CRERAR AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	2	0	**5**	0	3	0	**5**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
07:15	07:30	0	3	0	**4**	0	1	0	**4**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
07:30	07:45	2	1	0	**7**	1	3	0	**7**	**14**	2	0	1	**5**	0	0	0	**1**	**6**	**10**
07:45	08:00	0	4	0	**9**	0	2	0	**8**	**17**	2	0	3	**5**	0	0	0	**0**	**5**	**11**
08:00	08:15	1	2	0	**6**	0	3	1	**6**	**12**	0	0	0	**2**	0	0	0	**0**	**2**	**7**
08:15	08:30	0	3	0	**7**	0	4	0	**7**	**14**	0	1	0	**1**	0	0	0	**1**	**2**	**8**
08:30	08:45	0	4	0	**5**	0	1	0	**5**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
08:45	09:00	0	7	0	**11**	0	4	0	**11**	**22**	0	0	0	**0**	0	0	0	**0**	**0**	**11**
09:00	09:15	0	4	0	**6**	0	2	0	**6**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
09:15	09:30	0	2	0	**6**	0	4	0	**6**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
09:30	09:45	0	2	0	**4**	0	2	0	**4**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
09:45	10:00	0	2	0	**4**	0	2	0	**4**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
11:30	11:45	0	4	0	**6**	0	2	1	**7**	**13**	0	0	0	**1**	0	0	0	**0**	**1**	**7**
11:45	12:00	0	3	0	**3**	0	0	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
12:00	12:15	0	0	0	**6**	0	5	0	**5**	**11**	0	0	1	**1**	0	0	0	**0**	**1**	**6**
12:15	12:30	0	5	1	**8**	0	2	0	**7**	**15**	0	0	0	**0**	0	0	0	**1**	**1**	**8**
12:30	12:45	0	4	0	**8**	0	3	0	**7**	**15**	0	0	0	**0**	1	0	0	**1**	**1**	**8**
12:45	13:00	1	4	0	**9**	0	4	0	**8**	**17**	0	0	0	**1**	0	0	0	**0**	**1**	**9**
13:00	13:15	0	2	0	**6**	0	4	0	**6**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
13:15	13:30	0	4	0	**5**	0	1	0	**5**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
15:00	15:15	1	2	0	**6**	0	3	0	**5**	**11**	0	0	0	**1**	0	0	0	**0**	**1**	**6**
15:15	15:30	0	1	0	**5**	0	2	1	**4**	**9**	0	0	1	**2**	1	0	0	**1**	**3**	**6**
15:30	15:45	1	2	0	**6**	1	3	0	**7**	**13**	0	1	0	**2**	0	0	1	**3**	**5**	**9**
15:45	16:00	0	4	0	**5**	0	1	0	**5**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
16:00	16:15	0	4	0	**6**	0	2	0	**6**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
16:15	16:30	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
16:30	16:45	0	0	0	**3**	0	3	0	**3**	**6**	0	1	0	**2**	0	1	0	**2**	**4**	**5**
16:45	17:00	0	2	0	**4**	0	2	0	**4**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
17:00	17:15	0	1	0	**2**	0	1	2	**4**	**6**	0	0	0	**2**	0	0	0	**0**	**2**	**4**
17:15	17:30	0	2	0	**6**	0	4	0	**6**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
17:30	17:45	1	3	0	**7**	0	2	0	**5**	**12**	0	0	1	**2**	0	0	0	**0**	**2**	**7**
17:45	18:00	0	4	0	**5**	0	1	0	**5**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
Total:	None	7	87	1	**180**	2	76	5	**175**	**355**	4	3	7	**27**	2	1	1	**10**	**37**	**196**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ COLDREY AVE/CRERAR AVE

Survey Date: Wednesday, January 31, 2018 **WO No:** 37475

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

		MERIVALE RD		COLDREY AVE/CRERAR AVE		
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

Appendix C

Synchro Worksheets – Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	389	1071	203	278	258	0	0	384	345
Future Volume (vph)	0	0	0	389	1071	203	278	258	0	0	384	345
Satd. Flow (prot)	0	0	0	1426	4354	0	1658	1745	0	0	3316	1483
Flt Permitted				0.950	0.999		0.320					
Satd. Flow (perm)	0	0	0	1421	4353	0	550	1745	0	0	3316	1410
Satd. Flow (RTOR)					35							86
Lane Group Flow (vph)	0	0	0	389	1459	0	309	287	0	0	427	383
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Detector Phase				2	2		7	4			8	8
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				40.3	40.3		14.5	32.0			32.0	32.0
Total Split (s)				58.0	58.0		24.0	62.0			38.0	38.0
Total Split (%)				48.3%	48.3%		20.0%	51.7%			31.7%	31.7%
Yellow Time (s)				3.7	3.7		3.3	3.3			3.3	3.3
All-Red Time (s)				2.6	2.6		2.9	2.7			2.7	2.7
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				6.3	6.3		6.2	6.0			6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				C-Max	C-Max		None	Min			Min	Min
Act Effct Green (s)				54.0	54.0		53.5	53.7			29.7	29.7
Actuated g/C Ratio				0.45	0.45		0.45	0.45			0.25	0.25
v/c Ratio				0.61	0.74		0.76	0.37			0.52	0.93
Control Delay				25.8	25.0		27.3	14.7			41.1	63.5
Queue Delay				0.0	0.0		0.0	0.0			0.0	0.0
Total Delay				25.8	25.0		27.3	14.7			41.1	63.5
LOS				C	C		C	B			D	E
Approach Delay					25.2			21.3			51.7	
Approach LOS					C			C			D	
Queue Length 50th (m)				84.6	111.7		61.3	55.7			44.6	69.1
Queue Length 95th (m)				125.3	132.8		m86.2	m80.8			60.3	#123.5
Internal Link Dist (m)		193.0			341.6			139.1			131.1	
Turn Bay Length (m)				38.0								30.0
Base Capacity (vph)				640	1979		409	814			884	439
Starvation Cap Reductn				0	0		0	0			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.61	0.74		0.76	0.35			0.48	0.87

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 31.1	Intersection LOS: C
Intersection Capacity Utilization 90.4%	ICU Level of Service E

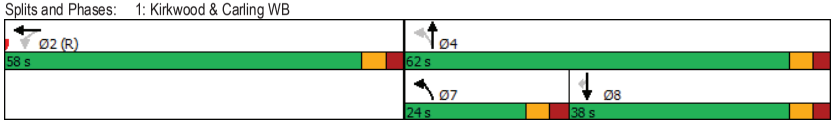
Analysis Period (min) 15

Description: As per the signal timing plan provided February 12, 2020.

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Kirkwood & Carling WB



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	40	10	62	206	406	61
Future Volume (vph)	40	10	62	206	406	61
Satd. Flow (prot)	1658	1483	1658	1745	1745	1483
Flt Permitted	0.950		0.496			
Satd. Flow (perm)	1641	1451	865	1745	1745	1450
Satd. Flow (RTOR)		11				68
Lane Group Flow (vph)	44	11	69	229	451	68
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	15.9	15.9	35.9	35.9
Total Split (s)	24.0	24.0	36.0	36.0	36.0	36.0
Total Split (%)	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.6	11.6	45.5	45.5	45.5	45.5
Actuated g/C Ratio	0.19	0.19	0.76	0.76	0.76	0.76
v/c Ratio	0.14	0.04	0.11	0.17	0.34	0.06
Control Delay	19.8	10.0	1.8	1.7	6.5	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	10.0	1.8	1.7	6.5	2.3
LOS	B	A	A	A	A	A
Approach Delay	17.9			1.7	5.9	
Approach LOS	B			A	A	
Queue Length 50th (m)	4.2	0.0	1.5	5.0	20.0	0.0
Queue Length 95th (m)	9.5	2.9	3.9	9.9	51.4	4.7
Internal Link Dist (m)	51.1			82.7	69.7	
Turn Bay Length (m)			35.0			50.0
Base Capacity (vph)	503	452	656	1323	1323	1116
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.11	0.17	0.34	0.06

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 8 (13%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay: 5.2	Intersection LOS: A
Intersection Capacity Utilization 56.4%	ICU Level of Service B
Analysis Period (min) 15	

Description: As per the signal timing plan provided on February 12, 2020.

Splits and Phases: 2: Merivale & SC N

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	1634	181	0	0	0	0	427	413	374	410	0
Future Volume (vph)	124	1634	181	0	0	0	0	427	413	374	410	0
Satd. Flow (prot)	1426	4502	1483	0	0	0	0	3316	1483	1658	1745	0
Flt Permitted	0.950									0.309		
Satd. Flow (perm)	1426	4502	1396	0	0	0	0	3316	1483	539	1745	0
Satd. Flow (RTOR)			201									
Lane Group Flow (vph)	124	1830	201	0	0	0	0	474	459	416	456	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		2						4		3	8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					10.0	10.0	10.0	10.0	
Minimum Split (s)	29.2	29.2	29.2					26.1	26.1	23.1	26.1	
Total Split (s)	58.0	58.0	58.0					38.0	38.0	24.0	62.0	
Total Split (%)	48.3%	48.3%	48.3%					31.7%	31.7%	20.0%	51.7%	
Yellow Time (s)	3.7	3.7	3.7					3.3	3.3	3.3	3.3	
All-Red Time (s)	2.5	2.5	2.5					2.8	2.8	1.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2					6.1	6.1	5.1	6.1	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	C-Max					Min	Min	Min	Min	
Act Effct Green (s)	51.8	51.8	51.8					31.9	31.9	56.9	55.9	
Actuated g/C Ratio	0.43	0.43	0.43					0.27	0.27	0.47	0.47	
v/c Ratio	0.20	0.94	0.28					0.54	1.16	0.97	0.56	
Control Delay	22.4	43.7	3.9					40.4	138.4	54.7	21.2	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.9	
Total Delay	22.4	43.7	3.9					40.4	138.4	54.7	22.1	
LOS	C	D	A					D	F	D	C	
Approach Delay		38.7						88.6			37.6	
Approach LOS		D						F			D	
Queue Length 50th (m)	20.6	157.0	0.0					50.4	~128.3	65.1	74.6	
Queue Length 95th (m)	35.9	#194.1	13.4					67.2	#191.0	#115.4	102.7	
Internal Link Dist (m)		150.0			320.1			71.9			139.1	
Turn Bay Length (m)	50.0		200.0						80.0			
Base Capacity (vph)	615	1943	716					881	394	431	812	
Starvation Cap Reductn	0	0	0					0	0	0	146	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.20	0.94	0.28					0.54	1.16	0.97	0.68	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15 (13%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16

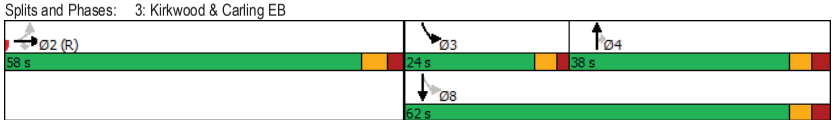
Intersection Signal Delay: 50.3	Intersection LOS: D
Intersection Capacity Utilization 90.4%	ICU Level of Service E
Analysis Period (min) 15	

Description: As per the signal timing plan provided February 12, 2020. SBL coded as Left per synchro DL warning.

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Kirkwood & Carling EB



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1116	713	14	12	23
Future Volume (vph)	0	1116	713	14	12	23
Satd. Flow (prot)	0	4764	4745	0	1536	0
Flt Permitted					0.984	
Satd. Flow (perm)	0	4764	4745	0	1519	0
Satd. Flow (RTOR)			5		26	
Lane Group Flow (vph)	0	1240	808	0	39	0
Turn Type		NA	NA		Perm	
Protected Phases		2	6			
Permitted Phases					4	
Detector Phase		2	6		4	
Switch Phase						
Minimum Initial (s)		10.0	10.0		10.0	
Minimum Split (s)		15.3	42.3		38.1	
Total Split (s)		81.0	81.0		39.0	
Total Split (%)		67.5%	67.5%		32.5%	
Yellow Time (s)		3.7	3.7		3.0	
All-Red Time (s)		1.6	1.6		3.1	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		5.3	5.3		6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max		None	
Act Effct Green (s)		89.7	89.7		23.2	
Actuated g/C Ratio		0.75	0.75		0.19	
v/c Ratio		0.35	0.23		0.12	
Control Delay		4.6	3.6		17.6	
Queue Delay		0.0	0.0		0.0	
Total Delay		4.6	3.6		17.6	
LOS		A	A		B	
Approach Delay		4.6	3.6		17.6	
Approach LOS		A	A		B	
Queue Length 50th (m)		30.8	19.1		2.3	
Queue Length 95th (m)		m31.8	2.4		10.8	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)						
Base Capacity (vph)		3560	3547		435	
Starvation Cap Reductn		0	0		0	
Spillback Cap Reductn		0	0		0	
Storage Cap Reductn		0	0		0	
Reduced v/c Ratio		0.35	0.23		0.09	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 38 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

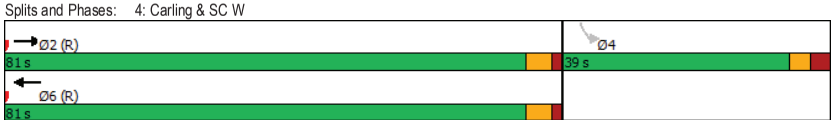
Maximum v/c Ratio: 0.35

Intersection Signal Delay: 4.5	Intersection LOS: A
Intersection Capacity Utilization 54.7%	ICU Level of Service A
Analysis Period (min) 15	

Description: As per the signal timing plan provided February 12, 2020.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	59	120	989	20	1	5	640	42	12	2	12	23
Future Volume (vph)	59	120	989	20	1	5	640	42	12	2	12	23
Satd. Flow (prot)	0	1658	4742	0	0	1658	4691	0	0	1583	0	0
Flt Permitted		0.352				0.239				0.839		
Satd. Flow (perm)	0	597	4742	0	0	412	4691	0	0	1353	0	0
Satd. Flow (RTOR)			5				17			13		
Lane Group Flow (vph)	0	199	1121	0	0	7	758	0	0	28	0	0
Turn Type	Perm	Perm	NA		Perm	Perm	NA		Perm	NA		Perm
Protected Phases			2				6			4		
Permitted Phases	2	2			6	6			4			8
Detector Phase	2	2	2		6	6	6		4	4		8
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0	10.0		10.0	10.0		10.0
Minimum Split (s)	23.6	23.6	23.6		23.6	23.6	23.6		37.0	37.0		37.0
Total Split (s)	83.0	83.0	83.0		83.0	83.0	83.0		37.0	37.0		37.0
Total Split (%)	69.2%	69.2%	69.2%		69.2%	69.2%	69.2%		30.8%	30.8%		30.8%
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7		3.0	3.0		3.0
All-Red Time (s)	1.9	1.9	1.9		1.9	1.9	1.9		4.0	4.0		4.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0		
Total Lost Time (s)		5.6	5.6			5.6	5.6			7.0		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max		C-Max	C-Max	C-Max		None	None		None
Act Effct Green (s)		102.4	102.4			102.4	102.4			14.0		
Actuated g/C Ratio		0.85	0.85			0.85	0.85			0.12		
v/c Ratio		0.39	0.28			0.02	0.19			0.17		
Control Delay		4.4	1.1			5.3	3.2			29.9		
Queue Delay		0.0	0.0			0.0	0.1			0.0		
Total Delay		4.4	1.2			5.3	3.3			29.9		
LOS		A	A			A	A			C		
Approach Delay			1.7				3.3			29.9		
Approach LOS			A				A			C		
Queue Length 50th (m)		3.6	7.3			0.3	13.0			3.3		
Queue Length 95th (m)		11.3	9.6			m1.4	18.9			10.2		
Internal Link Dist (m)			112.1				81.1			65.8		
Turn Bay Length (m)		65.0				30.0						
Base Capacity (vph)		509	4048			351	4007			348		
Starvation Cap Reductn		0	804			0	1620			0		
Spillback Cap Reductn		0	115			0	0			0		
Storage Cap Reductn		0	0			0	0			0		
Reduced v/c Ratio		0.39	0.35			0.02	0.32			0.08		

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	11
Future Volume (vph)	0	11
Satd. Flow (prot)	1658	1483
Flt Permitted	0.739	
Satd. Flow (perm)	1279	1452
Satd. Flow (RTOR)		24
Lane Group Flow (vph)	26	12
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	37.0	37.0
Total Split (s)	37.0	37.0
Total Split (%)	30.8%	30.8%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	4.0	4.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.0	7.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)	14.0	14.0
Actuated g/C Ratio	0.12	0.12
v/c Ratio	0.17	0.06
Control Delay	47.0	6.3
Queue Delay	0.0	0.0
Total Delay	47.0	6.3
LOS	D	A
Approach Delay	34.2	
Approach LOS	C	
Queue Length 50th (m)	5.8	0.0
Queue Length 95th (m)	12.2	2.7
Internal Link Dist (m)	63.4	
Turn Bay Length (m)		
Base Capacity (vph)	319	381
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.08	0.03

Intersection Summary

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 3.2	Intersection LOS: A
Intersection Capacity Utilization 70.5%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	950	74	152	453	39	106	229	407	36	252	128
Future Volume (vph)	0	950	74	152	453	39	106	229	407	36	252	128
Satd. Flow (prot)	0	4695	0	1658	4684	0	1658	1745	1483	1658	1745	1483
Flt Permitted				0.135			0.950			0.950		
Satd. Flow (perm)	0	4695	0	235	4684	0	1639	1745	1437	1639	1745	1437
Satd. Flow (RTOR)		11			15				290			142
Lane Group Flow (vph)	0	1138	0	169	546	0	118	254	452	40	280	142
Turn Type		NA		pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases				6					4			8
Detector Phase		2		1	6		7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)		10.0		5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)		29.0		10.4	29.0		11.3	38.7	38.7	11.3	38.7	38.7
Total Split (s)		48.0		12.0	60.0		21.0	39.0	39.0	21.0	39.0	39.0
Total Split (%)		40.0%		10.0%	50.0%		17.5%	32.5%	32.5%	17.5%	32.5%	32.5%
Yellow Time (s)		3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)		2.3		1.7	2.3		3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		5.4	6.0		6.3	6.7	6.7	6.3	6.7	6.7
Lead/Lag		Lag		Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes		Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		C-Max		None	C-Max		None	None	None	None	None	None
Act Effct Green (s)		46.6		63.6	63.0		12.6	32.0	32.0	8.3	25.3	25.3
Actuated g/C Ratio		0.39		0.53	0.52		0.10	0.27	0.27	0.07	0.21	0.21
v/c Ratio		0.62		0.67	0.22		0.68	0.55	0.76	0.35	0.76	0.34
Control Delay		21.6		34.9	16.4		70.6	42.3	22.7	57.6	51.7	10.0
Queue Delay		0.5		0.0	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Total Delay		22.1		34.9	16.4		70.6	42.3	22.7	57.6	52.3	10.0
LOS		C		C	B		E	D	C	E	D	B
Approach Delay		22.1			20.8			35.6			39.8	
Approach LOS		C			C			D			D	
Queue Length 50th (m)		62.0		20.1	23.7		26.9	52.7	36.7	9.4	48.6	6.3
Queue Length 95th (m)		82.5		#57.7	36.0		46.1	74.6	74.4	0.0	60.2	18.6
Internal Link Dist (m)		81.1			189.4			304.1			82.7	
Turn Bay Length (m)				70.0			50.0			30.0		50.0
Base Capacity (vph)		1831		254	2467		203	493	614	203	469	490
Starvation Cap Reductn		283		0	0		0	0	0	0	39	0
Spillback Cap Reductn		0		0	0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.74		0.67	0.22		0.58	0.52	0.74	0.20	0.65	0.29

Intersection Summary

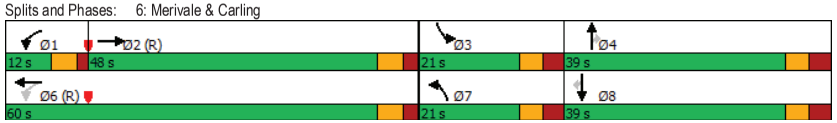
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 52 (43%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 27.9	Intersection LOS: C
Intersection Capacity Utilization 75.7%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Merivale & Carling



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	17	29	10	21	46	29	652	11	23	446	37
Future Volume (vph)	15	17	29	10	21	46	29	652	11	23	446	37
Satd. Flow (prot)	0	1599	0	0	1580	0	0	3301	0	0	3263	0
Flt Permitted		0.915			0.948			0.916			0.903	
Satd. Flow (perm)	0	1480	0	0	1506	0	0	3029	0	0	2952	0
Satd. Flow (RTOR)		32			51			4			19	
Lane Group Flow (vph)	0	68	0	0	85	0	0	768	0	0	563	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.8	24.8		24.8	24.8		33.8	33.8		33.8	33.8	
Total Split (s)	25.0	25.0		25.0	25.0		55.0	55.0		55.0	55.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.8			5.8			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		11.8			11.8			60.9			60.9	
Actuated g/C Ratio		0.15			0.15			0.76			0.76	
v/c Ratio		0.28			0.32			0.33			0.25	
Control Delay		20.6			17.5			5.0			4.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.6			17.5			5.0			4.4	
LOS		C			B			A			A	
Approach Delay		20.6			17.5			5.0			4.4	
Approach LOS		C			B			A			A	
Queue Length 50th (m)		5.0			4.7			17.6			11.5	
Queue Length 95th (m)		13.9			14.8			38.5			26.3	
Internal Link Dist (m)		146.9			128.0			113.1			304.1	
Turn Bay Length (m)												
Base Capacity (vph)		379			400			2307			2252	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.18			0.21			0.33			0.25	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 46 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 6.2	Intersection LOS: A
Intersection Capacity Utilization 61.1%	ICU Level of Service B
Analysis Period (min) 15	

Description: As per the signal timing plan provided February 12, 2020.

Splits and Phases: 7: Merivale & Coldrey/Crerar

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations		↑↑↑↱				↱↱↱		↱		
Traffic Vol, veh/h	0	1090	0	0	0	736	0	26	0	0
Future Vol, veh/h	0	1090	0	0	0	736	0	26	0	0
Conflicting Peds, #/hr	0	0	21	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	-	-	-	0	-	0	-	-
Veh in Median Storage, #	-	0	-	-	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1211	0	0	0	818	0	29	0	0

Major/Minor	Major1			Minor1	
Conflicting Flow All	-	0	0	-	627
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	365
Stage 1	0	-	-	0	-
Stage 2	0	-	-	0	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	-	-	-	-	359
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	15.9
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	359	-	-
HCM Lane V/C Ratio	0.08	-	-
HCM Control Delay (s)	15.9	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.3	-	-

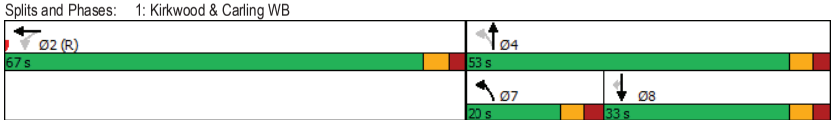
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	232	2027	271	198	495	0	0	456	378
Future Volume (vph)	0	0	0	232	2027	271	198	495	0	0	456	378
Satd. Flow (prot)	0	0	0	1426	4386	0	1658	1745	0	0	3316	1483
Flt Permitted				0.950	0.999		0.238					
Satd. Flow (perm)	0	0	0	1421	4386	0	410	1745	0	0	3316	1410
Satd. Flow (RTOR)					26							86
Lane Group Flow (vph)	0	0	0	232	2579	0	220	550	0	0	507	420
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Detector Phase				2	2		7	4			8	8
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				40.3	40.3		14.5	32.0			32.0	32.0
Total Split (s)				67.0	67.0		20.0	53.0			33.0	33.0
Total Split (%)				55.8%	55.8%		16.7%	44.2%			27.5%	27.5%
Yellow Time (s)				3.7	3.7		3.3	3.3			3.3	3.3
All-Red Time (s)				2.6	2.6		2.9	2.7			2.7	2.7
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				6.3	6.3		6.2	6.0			6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				C-Max	C-Max		None	Min			Min	Min
Act Effct Green (s)				60.7	60.7		46.8	47.0			27.2	27.2
Actuated g/C Ratio				0.51	0.51		0.39	0.39			0.23	0.23
v/c Ratio				0.32	1.16		0.73	0.81			0.68	1.09
Control Delay				17.5	100.1		36.2	40.3			47.7	107.7
Queue Delay				0.0	0.0		0.0	7.9			0.0	0.0
Total Delay				17.5	100.1		36.2	48.2			47.7	107.7
LOS				B	F		D	D			D	F
Approach Delay					93.3			44.8			74.9	
Approach LOS					F			D			E	
Queue Length 50th (m)				26.8	~276.8		43.7	132.0			57.8	~95.2
Queue Length 95th (m)				43.4	#301.3		#66.7	#174.4			76.5	#157.5
Internal Link Dist (m)		193.0			341.6			139.1			131.1	
Turn Bay Length (m)				38.0								30.0
Base Capacity (vph)				718	2231		303	683			751	385
Starvation Cap Reductn				0	0		0	101			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.32	1.16		0.73	0.95			0.68	1.09

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 39 (33%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16
Intersection Signal Delay: 81.2 — Intersection LOS: F
Intersection Capacity Utilization 93.9% — ICU Level of Service F
Analysis Period (min) 15
Description: As per the signal timing plan provided February 12, 2020.
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Kirkwood & Carling WB



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	78	56	59	197	452	85
Future Volume (vph)	78	56	59	197	452	85
Satd. Flow (prot)	1658	1483	1658	1745	1745	1483
Flt Permitted	0.950		0.455			
Satd. Flow (perm)	1640	1451	793	1745	1745	1450
Satd. Flow (RTOR)		62				94
Lane Group Flow (vph)	87	62	66	219	502	94
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	15.9	15.9	35.9	35.9
Total Split (s)	24.0	24.0	41.0	41.0	41.0	41.0
Total Split (%)	36.9%	36.9%	63.1%	63.1%	63.1%	63.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.6	11.6	46.2	46.2	46.2	46.2
Actuated g/C Ratio	0.18	0.18	0.71	0.71	0.71	0.71
v/c Ratio	0.30	0.20	0.12	0.18	0.41	0.09
Control Delay	25.0	7.9	4.1	4.5	7.3	1.9
Queue Delay	0.0	0.1	0.0	0.0	0.1	0.0
Total Delay	25.0	8.0	4.1	4.5	7.3	1.9
LOS	C	A	A	A	A	A
Approach Delay	17.9			4.4	6.5	
Approach LOS	B			A	A	
Queue Length 50th (m)	9.5	0.0	1.1	3.9	23.1	0.0
Queue Length 95th (m)	17.6	7.3	m13.4	m56.4	57.8	5.2
Internal Link Dist (m)	51.1			82.7	69.7	
Turn Bay Length (m)			35.0			50.0
Base Capacity (vph)	464	455	563	1239	1239	1057
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	74	0	0	113	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.16	0.12	0.18	0.45	0.09

Intersection Summary
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 27 (42%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

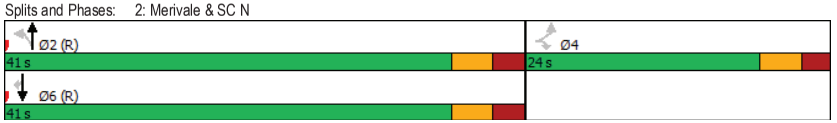
Maximum v/c Ratio: 0.41

Intersection Signal Delay: 7.6	Intersection LOS: A
Intersection Capacity Utilization 56.5%	ICU Level of Service B
Analysis Period (min) 15	

Description: As per the signal timing plan provided on February 12, 2020.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Merivale & SC N



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	393	1038	335	0	0	0	0	304	302	381	315	0
Future Volume (vph)	393	1038	335	0	0	0	0	304	302	381	315	0
Satd. Flow (prot)	1426	4493	1483	0	0	0	0	3316	1483	1658	1745	0
Flt Permitted	0.950	0.998								0.367		
Satd. Flow (perm)	1426	4493	1396	0	0	0	0	3316	1483	640	1745	0
Satd. Flow (RTOR)			329									
Lane Group Flow (vph)	385	1205	372	0	0	0	0	338	336	423	350	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		2						4		3	8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					10.0	10.0	10.0	10.0	
Minimum Split (s)	29.2	29.2	29.2					26.1	26.1	23.1	26.1	
Total Split (s)	61.0	61.0	61.0					29.0	29.0	30.0	59.0	
Total Split (%)	50.8%	50.8%	50.8%					24.2%	24.2%	25.0%	49.2%	
Yellow Time (s)	3.7	3.7	3.7					3.3	3.3	3.3	3.3	
All-Red Time (s)	2.5	2.5	2.5					2.8	2.8	1.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2					6.1	6.1	5.1	6.1	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	C-Max					Min	Min	Min	Min	
Act Effct Green (s)	54.8	54.8	54.8					23.8	23.8	53.9	52.9	
Actuated g/C Ratio	0.46	0.46	0.46					0.20	0.20	0.45	0.44	
v/c Ratio	0.59	0.59	0.46					0.52	1.14	0.86	0.46	
Control Delay	28.9	25.7	5.3					46.5	140.8	32.4	14.9	
Queue Delay	0.4	0.1	0.0					0.0	0.0	0.0	0.0	
Total Delay	29.3	25.7	5.3					46.5	140.8	32.4	14.9	
LOS	C	C	A					D	F	C	B	
Approach Delay		22.6						93.5			24.5	
Approach LOS		C						F			C	
Queue Length 50th (m)	76.7	79.7	5.6					38.1	~95.3	89.2	71.1	
Queue Length 95th (m)	113.9	95.0	24.8					53.3	#151.7	m#129.3	m96.4	
Internal Link Dist (m)		150.0			323.9			71.9			139.1	
Turn Bay Length (m)	50.0		200.0						80.0			
Base Capacity (vph)	651	2051	816					656	294	498	769	
Starvation Cap Reductn	0	0	0					0	0	0	0	
Spillback Cap Reductn	51	108	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.64	0.62	0.46					0.52	1.14	0.85	0.46	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 37.0	Intersection LOS: D
Intersection Capacity Utilization 93.9%	ICU Level of Service F
Analysis Period (min) 15	

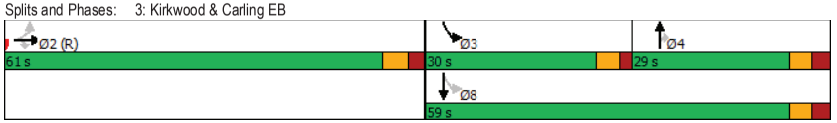
Description: As per the signal timing plan provided February 12, 2020. SBL coded as Left per synchro DL warning.

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Kirkwood & Carling EB



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	848	1832	5	35	38
Future Volume (vph)	0	848	1832	5	35	38
Satd. Flow (prot)	0	4764	4763	0	1563	0
Flt Permitted					0.976	
Satd. Flow (perm)	0	4764	4763	0	1538	0
Satd. Flow (RTOR)			1		12	
Lane Group Flow (vph)	0	942	2042	0	81	0
Turn Type		NA	NA		Perm	
Protected Phases		2	6			
Permitted Phases					4	
Detector Phase		2	6		4	
Switch Phase						
Minimum Initial (s)		10.0	10.0		10.0	
Minimum Split (s)		15.3	42.3		38.1	
Total Split (s)		81.0	81.0		39.0	
Total Split (%)		67.5%	67.5%		32.5%	
Yellow Time (s)		3.7	3.7		3.0	
All-Red Time (s)		1.6	1.6		3.1	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		5.3	5.3		6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max		None	
Act Effct Green (s)		89.7	89.7		23.2	
Actuated g/C Ratio		0.75	0.75		0.19	
v/c Ratio		0.26	0.57		0.26	
Control Delay		12.7	10.7		33.7	
Queue Delay		0.0	0.6		0.0	
Total Delay		12.7	11.3		33.7	
LOS		B	B		C	
Approach Delay		12.7	11.3		33.7	
Approach LOS		B	B		C	
Queue Length 50th (m)		45.9	103.4		12.5	
Queue Length 95th (m)		m52.9	118.6		25.5	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)						
Base Capacity (vph)		3560	3559		430	
Starvation Cap Reductn		0	978		0	
Spillback Cap Reductn		0	0		0	
Storage Cap Reductn		0	0		0	
Reduced v/c Ratio		0.26	0.79		0.19	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 38 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

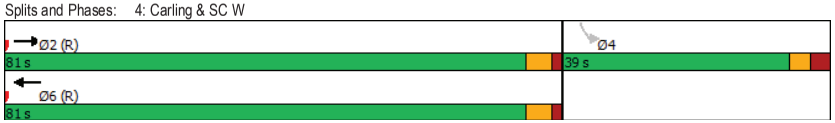
Maximum v/c Ratio: 0.57

Intersection Signal Delay: 12.3	Intersection LOS: B
Intersection Capacity Utilization 61.4%	ICU Level of Service B
Analysis Period (min) 15	

Description: As per the signal timing plan provided February 12, 2020.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	52	118	654	11	2	12	1711	78	15	1	17	74
Future Volume (vph)	52	118	654	11	2	12	1711	78	15	1	17	74
Satd. Flow (prot)	0	1658	4747	0	0	1658	4708	0	0	1572	0	0
Flt Permitted		0.053				0.359				0.853		
Satd. Flow (perm)	0	92	4747	0	0	609	4708	0	0	1365	0	0
Satd. Flow (RTOR)			4				7			19		
Lane Group Flow (vph)	0	189	739	0	0	15	1988	0	0	37	0	0
Turn Type	custom	pm+pt	NA		Perm	Perm	NA		Perm	NA		Perm
Protected Phases		5	2				6			4		
Permitted Phases	5	2			6	6			4			8
Detector Phase	5	5	2		6	6	6		4	4		8
Switch Phase												
Minimum Initial (s)	5.0	5.0	10.0		10.0	10.0	10.0		10.0	10.0		10.0
Minimum Split (s)	10.6	10.6	23.6		23.6	23.6	23.6		37.0	37.0		37.0
Total Split (s)	24.0	24.0	93.0		69.0	69.0	69.0		37.0	37.0		37.0
Total Split (%)	18.5%	18.5%	71.5%		53.1%	53.1%	53.1%		28.5%	28.5%		28.5%
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7		3.0	3.0		3.0
All-Red Time (s)	1.9	1.9	1.9		1.9	1.9	1.9		4.0	4.0		4.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0		
Total Lost Time (s)		5.6	5.6			5.6	5.6			7.0		
Lead/Lag	Lead	Lead			Lag	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes					
Recall Mode	None	None	C-Max		C-Max	C-Max	C-Max		None	None		None
Act Effct Green (s)		95.1	95.1			76.0	76.0			22.3		
Actuated g/C Ratio		0.73	0.73			0.58	0.58			0.17		
v/c Ratio		0.83	0.21			0.04	0.72			0.15		
Control Delay		59.4	6.6			5.2	12.5			25.1		
Queue Delay		0.0	0.0			0.0	0.7			0.0		
Total Delay		59.4	6.6			5.2	13.2			25.1		
LOS		E	A			A	B			C		
Approach Delay			17.3				13.1			25.1		
Approach LOS			B				B			C		
Queue Length 50th (m)		33.3	24.6			0.6	170.1			3.6		
Queue Length 95th (m)		58.0	30.3			m1.4	207.4			12.9		
Internal Link Dist (m)			112.1				81.1			65.8		
Turn Bay Length (m)		65.0				30.0						
Base Capacity (vph)		288	3472			356	2756			329		
Starvation Cap Reductn		0	0			0	405			0		
Spillback Cap Reductn		0	195			0	0			0		
Storage Cap Reductn		0	0			0	0			0		
Reduced v/c Ratio		0.66	0.23			0.04	0.85			0.11		

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 3 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2	64
Future Volume (vph)	2	64
Satd. Flow (prot)	1663	1483
Flt Permitted	0.704	
Satd. Flow (perm)	1218	1450
Satd. Flow (RTOR)		71
Lane Group Flow (vph)	84	71
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	37.0	37.0
Total Split (s)	37.0	37.0
Total Split (%)	28.5%	28.5%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	4.0	4.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.0	7.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)	22.3	22.3
Actuated g/C Ratio	0.17	0.17
v/c Ratio	0.40	0.23
Control Delay	51.0	10.7
Queue Delay	0.0	0.0
Total Delay	51.0	10.7
LOS	D	B
Approach Delay	32.5	
Approach LOS	C	
Queue Length 50th (m)	17.9	0.0
Queue Length 95th (m)	33.2	12.2
Internal Link Dist (m)	63.4	
Turn Bay Length (m)		
Base Capacity (vph)	281	389
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.30	0.18

Intersection Summary

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 91.8%	ICU Level of Service F
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	630	115	425	1576	49	100	207	228	70	313	125
Future Volume (vph)	0	630	115	425	1576	49	100	207	228	70	313	125
Satd. Flow (prot)	0	4617	0	1658	4736	0	1658	1745	1483	1658	1745	1483
Flt Permitted				0.950			0.950			0.950		
Satd. Flow (perm)	0	4617	0	1636	4736	0	1639	1745	1434	1637	1745	1435
Satd. Flow (RTOR)		27			5				253			123
Lane Group Flow (vph)	0	828	0	472	1805	0	111	230	253	78	348	139
Turn Type		NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases									4			8
Detector Phase		2		1	6		7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)		10.0		5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)		29.0		10.4	29.0		11.3	38.7	38.7	11.3	38.7	38.7
Total Split (s)		38.0		33.0	71.0		20.0	39.0	39.0	20.0	39.0	39.0
Total Split (%)		29.2%		25.4%	54.6%		15.4%	30.0%	30.0%	15.4%	30.0%	30.0%
Yellow Time (s)		3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)		2.3		1.7	2.3		3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		5.4	6.0		6.3	6.7	6.7	6.3	6.7	6.7
Lead/Lag		Lag		Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes		Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		C-Max		None	C-Max		None	None	None	None	None	None
Act Effct Green (s)		32.0		31.8	69.2		12.3	33.4	33.4	11.0	29.4	29.4
Actuated g/C Ratio		0.25		0.24	0.53		0.09	0.26	0.26	0.08	0.23	0.23
v/c Ratio		0.72		1.17	0.72		0.71	0.51	0.46	0.56	0.88	0.33
Control Delay		44.8		141.2	25.7		80.8	46.5	7.4	65.9	70.5	14.8
Queue Delay		1.5		0.0	2.4		0.0	0.0	0.0	0.0	19.5	0.0
Total Delay		46.3		141.2	28.1		80.8	46.5	7.4	65.9	90.0	14.8
LOS		D		F	C		F	D	A	E	F	B
Approach Delay		46.3			51.6			36.2			68.2	
Approach LOS		D			D			D			E	
Queue Length 50th (m)		71.0		~156.5	132.0		27.7	50.2	0.0	19.6	71.1	6.9
Queue Length 95th (m)		86.2		#222.5	151.6		#50.4	77.4	21.2	35.4	#124.3	26.5
Internal Link Dist (m)		81.1			189.4			304.1			82.7	
Turn Bay Length (m)				70.0			50.0			30.0		50.0
Base Capacity (vph)		1156		405	2524		174	454	560	174	433	448
Starvation Cap Reductn		164		0	0		0	0	0	0	82	0
Spillback Cap Reductn		0		0	562		0	0	0	0	0	13
Storage Cap Reductn		0		0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.83		1.17	0.92		0.64	0.51	0.45	0.45	0.99	0.32

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 15 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

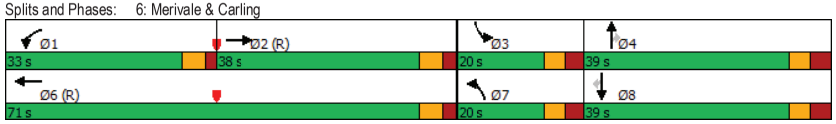
Maximum v/c Ratio: 1.17

Intersection Signal Delay: 50.6	Intersection LOS: D
Intersection Capacity Utilization 91.2%	ICU Level of Service F
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Merivale & Carling



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	68	19	27	56	27	12	466	9	43	730	50
Future Volume (vph)	22	68	19	27	56	27	12	466	9	43	730	50
Satd. Flow (prot)	0	1682	0	0	1661	0	0	3301	0	0	3268	0
Flt Permitted		0.904			0.881			0.930			0.898	
Satd. Flow (perm)	0	1536	0	0	1480	0	0	3073	0	0	2943	0
Satd. Flow (RTOR)		12			19			4			15	
Lane Group Flow (vph)	0	121	0	0	122	0	0	541	0	0	915	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.8	24.8		24.8	24.8		33.8	33.8		33.8	33.8	
Total Split (s)	25.0	25.0		25.0	25.0		55.0	55.0		55.0	55.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.8			5.8			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		12.5			12.5			60.2			60.2	
Actuated g/C Ratio		0.16			0.16			0.75			0.75	
v/c Ratio		0.48			0.49			0.23			0.41	
Control Delay		33.5			32.1			4.7			5.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		33.5			32.1			4.7			5.9	
LOS		C			C			A			A	
Approach Delay		33.5			32.1			4.7			5.9	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		15.6			14.8			11.8			23.7	
Queue Length 95th (m)		27.7			27.2			25.4			48.8	
Internal Link Dist (m)		146.9			128.0			113.1			304.1	
Turn Bay Length (m)												
Base Capacity (vph)		377			369			2312			2217	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.32			0.33			0.23			0.41	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 63 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 9.3	Intersection LOS: A
Intersection Capacity Utilization 71.9%	ICU Level of Service C
Analysis Period (min) 15	

Description: As per the signal timing plan provided February 12, 2020.

Splits and Phases: 7: Merivale & Coldrey/Crerar

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations		↑↑↑↱				↱↱↱		↱		
Traffic Vol, veh/h	0	822	0	0	0	1870	0	26	0	0
Future Vol, veh/h	0	822	0	0	0	1870	0	26	0	0
Conflicting Peds, #/hr	0	0	21	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	-	-	-	0	-	0	-	-
Veh in Median Storage, #	-	0	-	-	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	913	0	0	0	2078	0	29	0	0

Major/Minor	Major1			Minor1	
Conflicting Flow All	-	0	0	-	478
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	456
Stage 1	0	-	-	0	-
Stage 2	0	-	-	0	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	-	-	-	-	449
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	13.6
HCM LOS		B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	449	-	-
HCM Lane V/C Ratio	0.064	-	-
HCM Control Delay (s)	13.6	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Appendix D

Collision Data

Record	Location	X	Y	Date	Time	Environment	Road_Surface	Traffic_Control	Collision_Location	Light	Collision_Classification	Impact_type
2680	CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC	364680.2288	5027583.078	2016-10-20	20:17	02 - Rain	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
2681	CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC	364679.5325	5027584.598	2016-11-27	10:24	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
2879	CARLING AVE @ HWY 417 CARLING IC124R67	364332.7808	5027521.24	42907	0.6042	01 - Clear	01 - Dry	03 - Yield sign	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
4078	CARLING AVE @ HWY 417 CARLING IC124R67	364330.4957	5027524.055	42069	0.4319	01 - Clear	01 - Dry	03 - Yield sign	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
5723	CARLING AVE @ HWY 417 CARLING IC124R67	364332.2089	5027523.841	42200	0.7132	01 - Clear	01 - Dry	03 - Yield sign	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
8238	CARLING AVE @ HWY 417 CARLING IC124R67	364333.6504	5027523.841	42184	0.7153	01 - Clear	01 - Dry	03 - Yield sign	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
8687	CARLING AVE @ HWY 417 CARLING IC124R67	364332.6951	5027521.097	42068	0.7563	01 - Clear	01 - Dry	03 - Yield sign	02 - Intersection related	05 - Dusk	03 - P.D. only	03 - Rear end
3771	CARLING AVE @ HWY 417 CARLING IC124R67	364332.6259	5027523.913	41690	0.7917	01 - Clear	02 - Wet	03 - Yield sign	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
4558	CARLING AVE @ HWY 417 CARLING IC124R67	364332.2542	5027523.985	41686	0.4417	01 - Clear	01 - Dry	03 - Yield sign	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
12144	CARLING AVE @ HWY 417 CARLING IC124R67	364331.183	5027523.262	41973	0.8819	02 - Rain	02 - Wet	03 - Yield sign	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
12955	CARLING AVE @ HWY 417 CARLING IC124R67	364330.6973	5027521.936	41928	0.3396	02 - Rain	02 - Wet	03 - Yield sign	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
14380	CARLING AVE @ HWY 417 CARLING IC124R67	364330.6973	5027523.836	41992	0.4722	01 - Clear	01 - Dry	03 - Yield sign	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
10276	CARLING AVE @ HWY 417 CARLING IC124R67 (0002104)	364332.6955	5027522.542	43411	0.3542	01 - Clear	01 - Dry	03 - Yield sign	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
202	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.34377	5027493.53420	2018-01-05	16:40	03 - Snow	06 - Ice	01 - Traffic signal	03 - At intersection	05 - Dusk	03 - P.D. only	05 - Turning movement
500	CARLING AVE @ KIRKWOOD AVE N (0002358)	364274.00015	5027493.64666	2018-01-11	17:32	02 - Rain	02 - Wet	01 - Traffic signal	03 - At intersection	05 - Dusk	02 - Non-fatal injury	05 - Turning movement
826	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69235	5027493.53446	2018-01-18	19:20	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	02 - Non-fatal injury	05 - Turning movement
995	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69213	5027493.53408	2018-01-24	13:06	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
1584	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69247	5027493.53390	2018-02-06	16:40	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	05 - Dusk	03 - P.D. only	05 - Turning movement
1715	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69209	5027493.53395	2018-02-08	10:20	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
1805	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69227	5027493.53424	2018-02-10	12:10	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
1970	CARLING AVE @ KIRKWOOD AVE N (0002358)	364276.78761	5027494.34353	2018-02-14	12:07	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
2371	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.82128	5027493.55030	2018-02-27	7:44	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
2380	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69204	5027493.53419	2018-02-27	12:21	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
3197	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.39388	5027495.04039	2018-03-26	17:18	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
3250	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69224	5027493.53388	2018-03-28	10:38	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
3584	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69182	5027493.53414	2018-04-09	15:05	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
4351	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69186	5027493.53343	2018-05-08	21:30	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	04 - Sideswipe
4369	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69223	5027493.53405	2018-05-09	13:21	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
4547	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.39715	5027493.65321	2018-05-15	16:47	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
5045	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.73118	5027493.70485	2018-05-31	12:34	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
5650	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.75588	5027493.45883	2018-06-18	14:50	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
6249	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69428	5027493.61380	2018-07-06	14:11	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	07 - SMV other
6526	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.68912	5027493.59009	2018-07-15	3:01	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	02 - Non-fatal injury	02 - Angle
7097	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69243	5027493.53455	2018-08-02	20:47	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
7373	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69179	5027493.53381	2018-08-14	20:48	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	02 - Non-fatal injury	07 - SMV other
7614	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69211	5027493.53351	2018-08-23	15:04	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
7835	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69196	5027493.53381	2018-08-31	14:36	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
8337	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.70204	5027493.59528	2018-09-15	18:59	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	05 - Dusk	02 - Non-fatal injury	02 - Angle
8640	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.69242	5027493.53414	2018-09-21	18:00	02 - Rain	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
8881	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.71296	5027493.52176	2018-09-29	13:49	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
9116	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.65812	5027493.55720	2018-10-05	17:21	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
10780	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.79270	5027493.35808	2018-11-17	23:53	03 - Snow	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	07 - SMV other
10889	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.74042	5027493.61418	2018-11-20	16:00	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
11974	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.45612	5027493.35846	2018-12-14	9:09	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
12191	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.59387	5027493.54466	2018-12-18	19:05	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
12480	CARLING AVE @ KIRKWOOD AVE N (0002358)	364275.65275	5027493.42445	2018-12-27	9:01	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	02 - Angle
2900	CARLING AVE @ KIRKWOOD AVE S	364352.03495	5027338.21800	2017-04-30	20:18	02 - Rain	02 - Wet	01 - Traffic signal	02 - Intersection related	07 - Dark	02 - Non-fatal injury	04 - Sideswipe
2901	CARLING AVE @ KIRKWOOD AVE S	364349.77742	5027335.62602	2017-07-12	20:04	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	07 - SMV other
2902	CARLING AVE @ KIRKWOOD AVE S	364352.03495	5027338.88689	2017-07-05	10:48	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2903	CARLING AVE @ KIRKWOOD AVE S	364352.56350	5027336.90185	2017-08-17	21:49	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	02 - Non-fatal injury	07 - SMV other
2904	CARLING AVE @ KIRKWOOD AVE S	364351.09900	5027337.84985	2017-07-25	13:08	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2905	CARLING AVE @ KIRKWOOD AVE S	364351.63001	5027338.63767	2017-08-16	14:40	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	02 - Non-fatal injury	03 - Rear end
2906	CARLING AVE @ KIRKWOOD AVE S	364352.17840	5027338.26595	2017-09-20	14:45	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
2907	CARLING AVE @ KIRKWOOD AVE S	364351.70050	5027337.31241	2017-12-04	21:30	02 - Rain	02 - Wet	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	04 - Sideswipe
2908	CARLING AVE @ KIRKWOOD AVE S	364351.36605	5027337.54910	2017-11-02	20:12	02 - Rain	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
2909	CARLING AVE @ KIRKWOOD AVE S	364352.03495	5027338.21800	2017-02-15	19:40	03 - Snow	03 - Loose snow	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	04 - Sideswipe
2910	CARLING AVE @ KIRKWOOD AVE S	364352.03495	5027337.54910	2017-02-16	19:30	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	04 - Sideswipe
2911	CARLING AVE @ KIRKWOOD AVE S	364352.55887	5027334.97399	2017-01-04	13:20	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
2912	CARLING AVE @ KIRKWOOD AVE S	364353.41724	5027337.54910	2017-01-02	17:33	03 - Snow	04 - Slush	01 - Traffic signal	02 - Intersection related	05 - Dusk	02 - Non-fatal injury	03 - Rear end
2913	CARLING AVE @ KIRKWOOD AVE S	364351.70050	5027338.09555	2017-02-03	17:12	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2914	CARLING AVE @ KIRKWOOD AVE S	364353.20144	5027336.42340	2017-02-09	8:54	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2915	CARLING AVE @ KIRKWOOD AVE S	364353.20144	5027336.42340	2017-02-13	13:49	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
2916	CARLING AVE @ KIRKWOOD AVE S	364350.69716	5027337.54910	2017-04-20	9:42	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
2917	CARLING AVE @ KIRKWOOD AVE S	364351.22713	5027337.31241	2017-12-15	18:50	03 - Snow	03 - Loose snow	01 - Traffic signal	02 - Intersection related	07 - Dark	02 - Non-fatal injury	03 - Rear end
2918	CARLING AVE @ KIRKWOOD AVE S	364351.70050	5027336.87266	2017-12-23	13:56	03 - Snow	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
2919	CARLING AVE @ KIRKWOOD AVE S	364351.70050	5027336.42170	2017-12-21	13:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
2920	CARLING AVE @ KIRKWOOD AVE S	364351.90693	5027334.98209	2017-04-04	8:05	02 - Rain	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	02 - Non-fatal injury	03 - Rear end
2921	CARLING AVE @ KIRKWOOD AVE S	364352.64725	5027337.78579	2017-12-28	7:44	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	03 - Dawn	03 - P.D. only	07 - SMV other
2792	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027337.779	2016-01-13	16:15	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	02 - Non-fatal injury	03 - Rear end
2793	CARLING AVE @ KIRKWOOD AVE S	364352.1597	5027337.319	2016-05-25	10:23	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	05 - Turning movement
2794	CARLING AVE @ KIRKWOOD AVE S	364351.9278	5027337.549	2016-06-21	11:57	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	02 - Angle
2795	CARLING AVE @ KIRKWOOD AVE S	364351.4785	5027336.883	2016-03-04	8:30	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2796	CARLING AVE @ KIRKWOOD AVE S	364350.5162	5027337.983	2016-01-13	20:31	01 - Clear	04 - Slush	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	03 - Rear end
2797	CARLING AVE @ KIRKWOOD AVE S	364351.0419	5027336.89	2016-02-05	13:29	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2798	CARLING AVE @ KIRKWOOD AVE S	364351.925	5027336.427	2016-03-28	11:27	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
2799	CARLING AVE @ KIRKWOOD AVE S	364353.9519	5027337.174	2016-01-14	9:50	03 - Snow	03 - Loose snow	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
2800	CARLING AVE @ KIRKWOOD AVE S	364350.5782	5027336.876	2016-05-01	19:19	02 - Rain	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
2801	CARLING AVE @ KIRKWOOD AVE S	364351.926	5027336.873	2016-05-25	10:30	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	03 - Rear end

2802	CARLING AVE @ KIRKWOOD AVE S	364353.3274	5027339.137	2016-09-29	14:56	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
2803	CARLING AVE @ KIRKWOOD AVE S	364350.8136	5027338.879	2016-03-18	11:47	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	02 - Angle
2804	CARLING AVE @ KIRKWOOD AVE S	364351.9252	5027337.549	2016-05-07	8:05	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	07 - SMV other
2805	CARLING AVE @ KIRKWOOD AVE S	364351.4342	5027337.238	2016-10-17	15:10	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2806	CARLING AVE @ KIRKWOOD AVE S	364351.92	5027338.208	2016-11-04	12:27	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
2807	CARLING AVE @ KIRKWOOD AVE S	364351.92	5027336.89	2016-10-02	11:00	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
2808	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027337.549	2016-12-29	8:43	03 - Snow	03 - Loose snow	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
2809	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027337.135	2016-12-04	22:39	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
590	CARLING AVE @ KIRKWOOD AVE S	364350.7366	5027336.103	2015-04-09	10:55	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	05 - Turning movement
2287	CARLING AVE @ KIRKWOOD AVE S	364353.1419	5027337.189	2015-10-12	18:39	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	02 - Non-fatal injury	03 - Rear end
2667	CARLING AVE @ KIRKWOOD AVE S	364350.9798	5027336.468	2015-10-30	16:59	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	02 - Non-fatal injury	03 - Rear end
3348	CARLING AVE @ KIRKWOOD AVE S	364350.7366	5027338.031	2015-01-22	17:54	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
3475	CARLING AVE @ KIRKWOOD AVE S	364352.6644	5027337.067	2015-05-08	13:36	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
4525	CARLING AVE @ KIRKWOOD AVE S	364351.9464	5027338.647	2015-02-14	9:23	03 - Snow	03 - Loose snow	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
4752	CARLING AVE @ KIRKWOOD AVE S	364352.6644	5027337.067	2015-01-03	18:06	03 - Snow	03 - Loose snow	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
5179	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027335.139	2015-01-16	23:07	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
5334	CARLING AVE @ KIRKWOOD AVE S	364349.7728	5027338.031	2015-02-05	15:36	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	99 - Other
5885	CARLING AVE @ KIRKWOOD AVE S	364352.6644	5027337.067	2015-01-14	15:15	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
6029	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027337.067	2015-03-16	15:02	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
6250	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027336.103	2015-02-08	8:01	03 - Snow	06 - Ice	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	07 - SMV other
6785	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027338.031	2015-01-12	18:30	03 - Snow	03 - Loose snow	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
6886	CARLING AVE @ KIRKWOOD AVE S	364353.1419	5027337.909	2015-05-05	17:27	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
6927	CARLING AVE @ KIRKWOOD AVE S	364352.6644	5027337.067	2015-02-23	10:50	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
7194	CARLING AVE @ KIRKWOOD AVE S	364352.4212	5027337.909	2015-08-16	20:14	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	05 - Dusk	03 - P.D. only	02 - Angle
9875	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027335.747	2015-07-29	15:10	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
12035	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027337.099	2015-08-30	16:14	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
12664	CARLING AVE @ KIRKWOOD AVE S	364350.9798	5027337.189	2015-10-14	18:13	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
12922	CARLING AVE @ KIRKWOOD AVE S	364353.1419	5027337.189	2015-07-25	12:32	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
13762	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027336.827	2015-12-17	7:42	02 - Rain	02 - Wet	01 - Traffic signal	02 - Intersection related	03 - Dawn	03 - P.D. only	03 - Rear end
13765	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027337.549	2015-12-23	19:57	02 - Rain	02 - Wet	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
568	CARLING AVE @ KIRKWOOD AVE S	364350.0998	5027339.98	2014-03-04	12:20	00 - Unknown	00 - Unknown	01 - Traffic signal	02 - Intersection related	01 - Daylight	02 - Non-fatal injury	03 - Rear end
2515	CARLING AVE @ KIRKWOOD AVE S	364351.9415	5027337.911	2014-04-09	18:35	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	05 - Turning movement
2769	CARLING AVE @ KIRKWOOD AVE S	364350.4659	5027340.018	2014-01-07	5:56	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	04 - Sideswipe
4385	CARLING AVE @ KIRKWOOD AVE S	364350.6866	5027337.803	2014-02-01	17:30	03 - Snow	03 - Loose snow	01 - Traffic signal	02 - Intersection related	05 - Dusk	03 - P.D. only	03 - Rear end
4900	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027338.31	2014-03-01	8:27	01 - Clear	04 - Slush	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
6028	CARLING AVE @ KIRKWOOD AVE S	364351.2266	5027335.653	2014-03-31	8:20	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
6539	CARLING AVE @ KIRKWOOD AVE S	364351.2266	5027335.653	2014-05-13	12:08	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
6619	CARLING AVE @ KIRKWOOD AVE S	364351.2266	5027337.549	2014-05-01	18:30	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
7161	CARLING AVE @ KIRKWOOD AVE S	364350.6922	5027337.136	2014-05-22	15:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
7427	CARLING AVE @ KIRKWOOD AVE S	364351.2266	5027337.549	2014-05-30	13:50	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
7591	CARLING AVE @ KIRKWOOD AVE S	364351.2266	5027335.653	2014-05-29	15:37	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
7840	CARLING AVE @ KIRKWOOD AVE S	364349.3308	5027337.549	2014-06-19	11:37	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
8322	CARLING AVE @ KIRKWOOD AVE S	364353.1223	5027338.497	2014-06-28	7:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
9674	CARLING AVE @ KIRKWOOD AVE S	364351.2266	5027338.497	2014-09-25	8:50	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
11501	CARLING AVE @ KIRKWOOD AVE S	364351.2266	5027337.549	2014-09-02	20:00	02 - Rain	02 - Wet	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
11529	CARLING AVE @ KIRKWOOD AVE S	364351.2266	5027337.549	2014-09-08	11:35	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
11726	CARLING AVE @ KIRKWOOD AVE S	364350.7504	5027336.124	2014-12-05	20:16	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	02 - Angle
12232	CARLING AVE @ KIRKWOOD AVE S	364352.6644	5027337.067	2014-10-20	11:15	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	02 - Angle
12995	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027338.024	2014-12-23	13:15	02 - Rain	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
13844	CARLING AVE @ KIRKWOOD AVE S	364351.7005	5027336.124	2014-12-22	14:30	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
14326	CARLING AVE @ KIRKWOOD AVE S	364350.7504	5027336.124	2014-09-24	8:30	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	05 - Turning movement
14578	CARLING AVE @ KIRKWOOD AVE S	364352.6506	5027335.174	2014-12-18	6:15	03 - Snow	02 - Wet	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
64	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.70035	5027337.54918	2018-01-02	13:55	03 - Snow	03 - Loose snow	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
247	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.70047	5027337.54931	2018-01-05	16:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
347	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.70050	5027337.54989	2018-01-08	14:13	03 - Snow	04 - Slush	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	03 - Rear end
498	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.70005	5027337.54915	2018-01-11	16:29	01 - Clear	04 - Slush	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
2911	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.70023	5027337.54853	2018-03-16	7:16	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
3713	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.69985	5027337.54950	2018-04-14	19:25	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
3793	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.41393	5027337.94484	2018-04-17	19:51	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	02 - Non-fatal injury	03 - Rear end
4782	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.94427	5027337.07332	2018-05-13	17:35	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
4808	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.70092	5027337.54943	2018-05-24	9:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
4883	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.73623	5027337.19757	2018-05-27	15:20	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
5245	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.50975	5027337.60819	2018-06-06	14:24	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
8070	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.70060	5027337.54961	2018-09-08	16:00	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	03 - Rear end
8706	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.65738	5027337.57310	2018-09-25	11:45	02 - Rain	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	05 - Turning movement
9117	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.60771	5027337.61915	2018-10-03	20:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
9189	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.66809	5027337.55768	2018-10-09	17:00	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
9650	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.70053	5027337.54916	2018-10-20	15:40	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
10115	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.70018	5027337.54906	2018-11-02	11:10	02 - Rain	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	05 - Turning movement
11274	CARLING AVE @ KIRKWOOD AVE S (0002209)	364352.05461	5027337.57037	2018-11-06	17:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	02 - Non-fatal injury	04 - Sideswipe
11327	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.66388	5027337.58331	2018-10-23	14:23	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
12411	CARLING AVE @ KIRKWOOD AVE S (0002209)	364351.52073	5027337.50536	2018-12-23	18:17	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	05 - Turning movement
2819	CARLING AVE @ MEATH ST	364466.7499	5027452.304	2016-12-18	0:40	03 - Snow	05 - Packed snow	02 - Stop sign	02 - Intersection related	07 - Dark	03 - P.D. only	07 - SMV other
2939	CARLING AVE @ MERIVALE RD	364894.36935	5027700.54420	2017-06-29	19:18	02 - Rain	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	05 - Turning movement
2940	CARLING AVE @ MERIVALE RD	364894.23043	5027699.83414	2017-08-26	0:00	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	00 - Unknown	02 - Non-fatal injury	02 - Angle
2941	CARLING AVE @ MERIVALE RD	364894.70380	5027700.23979	2017-08-03	14:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2942	CARLING AVE @ MERIVALE RD	364895.16304	5027700.31458	2017-08-07	11:01	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
2943	CARLING AVE @ MERIVALE RD	364895.17717	5027700.78089	2017-11-08	16:20	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	03 - Rear end
2944	CARLING AVE @ MERIVALE RD	364895.18170	5027699.82735	2017-11-03	13:34	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle

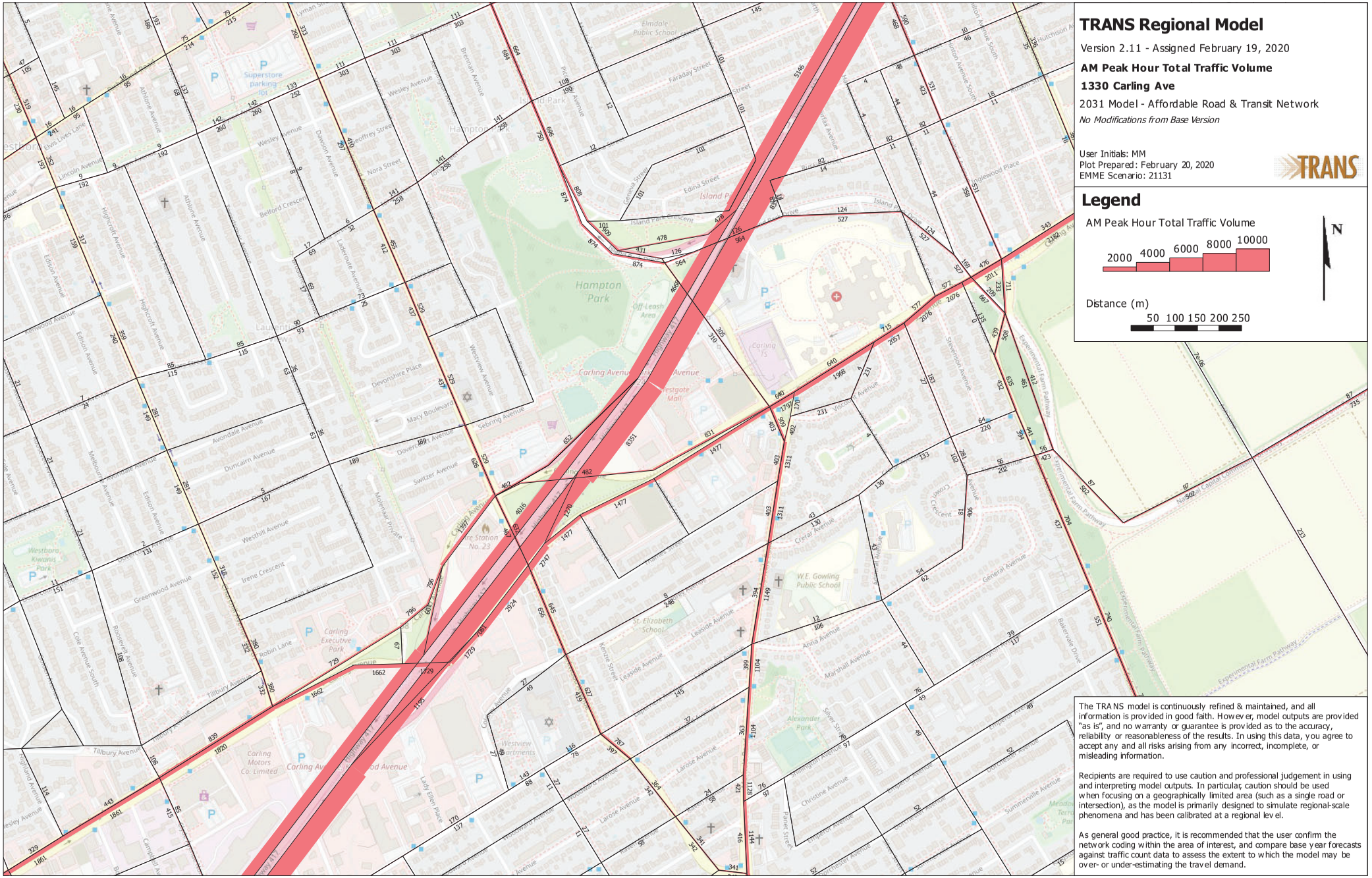
2945	CARLING AVE @ MERIVALE RD	364894.70380	5027699.73009	2017-01-20	13:52	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
2946	CARLING AVE @ MERIVALE RD	364894.15735	5027699.99775	2017-01-24	15:00	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2947	CARLING AVE @ MERIVALE RD	364894.36935	5027699.20641	2017-03-14	12:39	03 - Snow	03 - Loose snow	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2948	CARLING AVE @ MERIVALE RD	364894.70380	5027700.78089	2017-12-19	10:01	03 - Snow	04 - Slush	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	02 - Angle
2824	CARLING AVE @ MERIVALE RD	364893.9533	5027700.169	2016-01-17	18:01	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	02 - Non-fatal injury	05 - Turning movement
2825	CARLING AVE @ MERIVALE RD	364896.3601	5027700.13	2016-09-08	23:07	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	02 - Non-fatal injury	03 - Rear end
2826	CARLING AVE @ MERIVALE RD	364894.4843	5027700.325	2016-12-08	9:41	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	05 - Turning movement
2827	CARLING AVE @ MERIVALE RD	364894.2446	5027699.396	2016-02-16	7:45	03 - Snow	03 - Loose snow	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2828	CARLING AVE @ MERIVALE RD	364895.3624	5027700.325	2016-10-06	11:45	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
2829	CARLING AVE @ MERIVALE RD	364895.1772	5027700.308	2016-09-23	8:04	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
2830	CARLING AVE @ MERIVALE RD	364894.2446	5027701.233	2016-01-04	17:40	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
2831	CARLING AVE @ MERIVALE RD	364894.0452	5027699.447	2016-08-23	13:33	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
2832	CARLING AVE @ MERIVALE RD	364894.4843	5027700.325	2016-09-09	13:35	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
2833	CARLING AVE @ MERIVALE RD	364894.9293	5027700.319	2016-06-03	23:03	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	02 - Angle
2834	CARLING AVE @ MERIVALE RD	364894.7038	5027700.13	2016-11-30	19:00	02 - Rain	02 - Wet	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	04 - Sideswipe
2835	CARLING AVE @ MERIVALE RD	364895.532	5027701.786	2016-12-06	13:40	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2836	CARLING AVE @ MERIVALE RD	364894.0452	5027700.325	2016-12-06	20:39	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
955	CARLING AVE @ MERIVALE RD	364894.9233	5027700.764	2015-03-02	17:53	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	05 - Dusk	02 - Non-fatal injury	05 - Turning movement
1647	CARLING AVE @ MERIVALE RD	364894.7038	5027700.062	2015-02-17	13:36	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	02 - Non-fatal injury	04 - Sideswipe
4708	CARLING AVE @ MERIVALE RD	364895.6677	5027699.098	2015-04-24	22:09	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
5965	CARLING AVE @ MERIVALE RD	364892.7761	5027701.026	2015-02-20	13:24	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
6187	CARLING AVE @ MERIVALE RD	364893.7399	5027699.098	2015-01-05	14:09	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
8288	CARLING AVE @ MERIVALE RD	364893.9831	5027700.184	2015-07-19	17:10	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	05 - Turning movement
8589	CARLING AVE @ MERIVALE RD	364893.3261	5027700.315	2015-02-03	16:12	03 - Snow	03 - Loose snow	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
8765	CARLING AVE @ MERIVALE RD	364894.7038	5027700.062	2015-04-07	13:30	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
9236	CARLING AVE @ MERIVALE RD	364894.7038	5027699.098	2015-04-04	23:40	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	02 - Angle
9290	CARLING AVE @ MERIVALE RD	364894.7038	5027700.184	2015-05-27	16:41	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
12594	CARLING AVE @ MERIVALE RD	364895.4245	5027699.463	2015-05-26	15:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
14513	CARLING AVE @ MERIVALE RD	364895.4258	5027698.378	2015-12-09	20:15	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	04 - Sideswipe
96	CARLING AVE @ MERIVALE RD	364895.2108	5027700.798	2014-01-15	7:31	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	03 - Dawn	02 - Non-fatal injury	05 - Turning movement
1455	CARLING AVE @ MERIVALE RD	364896.6315	5027701.026	2014-08-05	15:39	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	02 - Angle
4530	CARLING AVE @ MERIVALE RD	364895.2108	5027700.798	2014-02-14	10:23	01 - Clear	03 - Loose snow	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
5963	CARLING AVE @ MERIVALE RD	364893.282	5027700.544	2014-02-13	9:15	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
6005	CARLING AVE @ MERIVALE RD	364896.1256	5027700.544	2014-04-06	16:04	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
6199	CARLING AVE @ MERIVALE RD	364894.7038	5027701.305	2014-02-28	16:57	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
7099	CARLING AVE @ MERIVALE RD	364893.282	5027701.492	2014-05-14	16:15	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
9952	CARLING AVE @ MERIVALE RD	364896.1256	5027701.492	2014-10-03	13:08	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
10357	CARLING AVE @ MERIVALE RD	364895.1777	5027700.544	2014-11-20	17:31	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
10637	CARLING AVE @ MERIVALE RD	364896.1256	5027700.544	2014-10-08	10:51	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	05 - Turning movement
11446	CARLING AVE @ MERIVALE RD	364894.2299	5027701.492	2014-08-14	15:00	02 - Rain	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	05 - Turning movement
388	CARLING AVE @ MERIVALE RD (0002148)	364894.70333	5027700.54448	2018-01-09	9:17	01 - Clear	03 - Loose snow	01 - Traffic signal	02 - Intersection related	01 - Daylight	02 - Non-fatal injury	03 - Rear end
563	CARLING AVE @ MERIVALE RD (0002148)	364894.35537	5027698.45361	2018-01-13	10:42	01 - Clear	03 - Loose snow	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
575	CARLING AVE @ MERIVALE RD (0002148)	364894.70321	5027700.54425	2018-01-13	14:14	01 - Clear	04 - Slush	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
3438	CARLING AVE @ MERIVALE RD (0002148)	364894.35537	5027699.84734	2018-04-04	20:31	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
4809	CARLING AVE @ MERIVALE RD (0002148)	364894.70402	5027700.54411	2018-05-24	17:37	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	02 - Angle
6674	CARLING AVE @ MERIVALE RD (0002148)	364894.70372	5027700.54442	2018-07-19	16:33	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	02 - Angle
8289	CARLING AVE @ MERIVALE RD (0002148)	364894.70332	5027700.54423	2018-09-14	17:21	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
9357	CARLING AVE @ MERIVALE RD (0002148)	364894.70414	5027700.54368	2018-10-13	11:55	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
9970	CARLING AVE @ MERIVALE RD (0002148)	364894.70345	5027700.54402	2018-10-30	7:25	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
10809	CARLING AVE @ MERIVALE RD (0002148)	364894.60844	5027700.63457	2018-11-19	11:39	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	05 - Turning movement
2949	CARLING AVE @ MERIVALE RD EXTENSION	364950.55664	5027732.65122	2017-07-11	17:28	01 - Clear	01 - Dry	02 - Stop sign	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
8597	CARLING AVE @ MERIVALE RD EXTENSION	364950.1993	5027735.499	2015-04-23	17:24	01 - Clear	01 - Dry	02 - Stop sign	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
3450	CARLING AVE @ MERIVALE RD EXTENSION (0008794)	364950.34967	5027736.63549	2018-04-05	8:12	01 - Clear	01 - Dry	02 - Stop sign	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
2898	CARLING AVE @ WESTGATE SC E	364799.926	5027658.477	2016-07-22	12:53	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	07 - SMV other
2899	CARLING AVE @ WESTGATE SC E	364800.9752	5027659.039	2016-10-31	12:53	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	99 - Other
2900	CARLING AVE @ WESTGATE SC E	364800.5216	5027658.173	2016-09-23	9:15	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
2901	CARLING AVE @ WESTGATE SC E	364800.5439	5027659.258	2016-07-05	12:34	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
3499	CARLING AVE @ WESTGATE SC E	364801.2805	5027658.776	2015-02-04	15:15	03 - Snow	03 - Loose snow	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
3590	CARLING AVE @ WESTGATE SC E	364800.3166	5027658.776	2015-05-12	10:09	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
4916	CARLING AVE @ WESTGATE SC E	364801.758	5027659.619	2015-09-24	16:40	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
10131	CARLING AVE @ WESTGATE SC E	364801.2805	5027658.776	2015-05-20	10:08	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
10282	CARLING AVE @ WESTGATE SC E	364800.3166	5027658.776	2015-01-03	19:34	03 - Snow	05 - Packed snow	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	04 - Sideswipe
842	CARLING AVE @ WESTGATE SC E	364799.8427	5027657.363	2014-06-02	9:21	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	02 - Non-fatal injury	03 - Rear end
5799	CARLING AVE @ WESTGATE SC E (0008795)	364800.31642	5027659.25848	2018-06-19	10:14	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
2918	CARLING AVE btwn ARCHIBALD ST & 73 E OF ARCHIBALD ST/WESTGATE SC W	364680.0275	5027565.121	2016-02-16	19:01	03 - Snow	03 - Loose snow	10 - No control	04 - At/near private drive	07 - Dark	02 - Non-fatal injury	03 - Rear end
3085	CARLING AVE EB btwn KIRKWOOD AVE & HWY417 IC124 RAMP55	364371.43294	5027363.63606	2017-02-21	13:18	01 - Clear	02 - Wet	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
3086	CARLING AVE EB btwn KIRKWOOD AVE & HWY417 IC124 RAMP55	364363.17003	5027353.08076	2017-12-31	8:37	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	02 - Non-fatal injury	03 - Rear end
2972	CARLING AVE EB btwn KIRKWOOD AVE & HWY417 IC124 RAMP55	364378.9233	5027377.066	2016-10-20	12:27	02 - Rain	02 - Wet	10 - No control	01 - Non intersection	01 - Daylight	02 - Non-fatal injury	07 - SMV other
13021	CARLING AVE EB btwn KIRKWOOD AVE & HWY417 IC124 RAMP55	364381.7041	5027378.039	2015-10-15	20:00	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	07 - Dark	03 - P.D. only	04 - Sideswipe
1468	CARLING AVE EB btwn KIRKWOOD AVE & HWY417 IC124 RAMP55	364360.3752	5027347.67	2014-05-31	4:03	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	07 - Dark	02 - Non-fatal injury	07 - SMV other
3217	CARLING AVE EB btwn KIRKWOOD AVE & HWY417 IC124 RAMP55 (__3ZA4NS)	364358.13134	5027346.30246	2018-03-21	14:30	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
3088	CARLING AVE EB btwn WESTGATE SC E & 73 E OF ARCHIBALD ST/WESTGATE SC W	364770.34483	5027622.33907	2017-08-14	15:26	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	02 - Non-fatal injury	02 - Angle
3089	CARLING AVE EB btwn WESTGATE SC E & 73 E OF ARCHIBALD ST/WESTGATE SC W	364793.87540	5027637.82231	2017-10-25	7:53	01 - Clear	01 - Dry	10 - No control	04 - At/near private drive	01 - Daylight	03 - P.D. only	05 - Turning movement
2029	CARLING AVE EB btwn WESTGATE SC E & 73 E OF ARCHIBALD ST/WESTGATE SC W	364722.7323	5027593.656	2014-10-23	11:46	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	02 - Non-fatal injury	03 - Rear end
3090	CARLING AVE EB btwn WESTGATE SC E & MERIVALE RD	364852.32161	5027673.66066	2017-01-14	17:57	01 - Clear	01 - Dry	10 - No control	04 - At/near private drive	07 - Dark	02 - Non-fatal injury	05 - Turning movement
8210	CARLING AVE WB btwn HWY417 IC124 RAMP65 & 73 E OF ARCHIBALD ST/WESTGAT (__3ZA26SA)	364649.63078	5027564.55861	2018-09-12	18:15	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
3004	CARLING AVE WB btwn HWY417 IC124 RAMP67 & HWY417 IC124 RAMP65	364424.371	5027552.51	2016-02-01	8:50	01 - Clear	02 - Wet	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
7322	CARLING AVE WB btwn HWY417 IC124 RAMP67 & HWY417 IC124 RAMP65	364371.1318	5027542.288	2014-04-28	12:43	01 - Clear	01 - Dry	10 - No control	04 - At/near private drive	01 - Daylight	03 - P.D. only	05 - Turning movement
11525	CARLING AVE WB btwn HWY417 IC124 RAMP67 & HWY417 IC124 RAMP65	364354.0551	5027531.568	2014-09-16	10:00	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	03 - Rear end

603	CARLING AVE WB btwn HWY417 IC124 RAMP67 & HWY417 IC124 RAMP65 (__3ZA1Q8)	364407.79806	5027551.48638	2018-01-14	2:04	01 - Clear	06 - Ice	10 - No control	01 - Non intersection	07 - Dark	03 - P.D. only	07 - SMV other
8259	CARLING AVE WB btwn HWY417 IC124 RAMP67 & HWY417 IC124 RAMP65 (__3ZA1Q8)	364580.18146	5027540.05698	2018-09-14	2:44	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	07 - Dark	03 - P.D. only	07 - SMV other
3108	CARLING AVE WB btwn KIRKWOOD AVE & HWY417 IC124 RAMP67	364321.59297	5027517.47742	2017-10-25	20:22	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	07 - Dark	03 - P.D. only	07 - SMV other
3109	CARLING AVE WB btwn KIRKWOOD AVE & HWY417 IC124 RAMP67	364304.12029	5027507.58102	2017-03-22	15:14	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
3006	CARLING AVE WB btwn KIRKWOOD AVE & HWY417 IC124 RAMP67	364323.1612	5027517.774	2016-03-21	15:26	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
3007	CARLING AVE WB btwn KIRKWOOD AVE & HWY417 IC124 RAMP67	364322.5018	5027518.669	2016-09-10	15:41	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
3008	CARLING AVE WB btwn KIRKWOOD AVE & HWY417 IC124 RAMP67	364287.1056	5027500.257	2016-02-12	16:34	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
3670	CARLING AVE WB btwn KIRKWOOD AVE & HWY417 IC124 RAMP67	364303.5077	5027507.67	2015-03-27	16:10	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
9312	CARLING AVE WB btwn KIRKWOOD AVE & HWY417 IC124 RAMP67	364313.2968	5027511.662	2014-08-12	14:10	02 - Rain	02 - Wet	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
161	CARLING AVE WB btwn KIRKWOOD AVE & HWY417 IC124 RAMP67 (__3ZA4N1)	364303.26844	5027507.58394	2018-01-04	18:52	03 - Snow	05 - Packed snow	10 - No control	01 - Non intersection	07 - Dark	03 - P.D. only	03 - Rear end
2342	CARLING AVE WB btwn KIRKWOOD AVE & HWY417 IC124 RAMP67 (__3ZA4N1)	364323.22806	5027517.72584	2018-02-26	10:36	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	02 - Non-fatal injury	03 - Rear end
3316	CARLING AVE WB btwn KIRKWOOD AVE & HWY417 IC124 RAMP67 (__3ZA4N1)	364304.19510	5027508.04300	2018-03-30	12:32	03 - Snow	02 - Wet	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
9242	CARLING AVE WB btwn KIRKWOOD AVE & HWY417 IC124 RAMP67 (__3ZA4N1)	364317.69021	5027514.90832	2018-10-10	13:45	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
9111	KIRKWOOD AVE btwn CARLING AVE & CARLING AVE	364289.40457	5027465.44055	2017-04-27	8:00	01 - Clear	02 - Wet	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
7219	KIRKWOOD AVE btwn CARLING AVE & CARLING AVE	364303.5761	5027432.829	2015-08-10	12:42	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
12707	KIRKWOOD AVE btwn CARLING AVE & CARLING AVE	364343.1494	5027358.927	2014-11-14	16:32	01 - Clear	06 - Ice	10 - No control	01 - Non intersection	05 - Dusk	03 - P.D. only	07 - SMV other
4771	KIRKWOOD AVE btwn CARLING AVE & CARLING AVE (__3ZA4NV)	364304.97022	5027432.26063	2018-05-23	18:31	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	03 - Rear end
9117	KIRKWOOD AVE N @ CARLING AVE	364275.35775	5027492.86530	2017-05-18	15:00	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
9118	KIRKWOOD AVE N @ CARLING AVE	364275.11187	5027494.07084	2017-06-21	16:30	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
9119	KIRKWOOD AVE N @ CARLING AVE	364276.69554	5027492.86530	2017-05-07	12:27	02 - Rain	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
9120	KIRKWOOD AVE N @ CARLING AVE	364275.08189	5027492.42009	2017-07-07	12:58	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
9121	KIRKWOOD AVE N @ CARLING AVE	364275.78077	5027492.06415	2017-07-06	16:54	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
9122	KIRKWOOD AVE N @ CARLING AVE	364274.54074	5027494.23549	2017-08-24	9:16	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	03 - Rear end
9123	KIRKWOOD AVE N @ CARLING AVE	364275.48748	5027493.05206	2017-10-23	16:14	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
9124	KIRKWOOD AVE N @ CARLING AVE	364276.19273	5027492.62676	2017-10-03	19:34	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	02 - Non-fatal injury	05 - Turning movement
9125	KIRKWOOD AVE N @ CARLING AVE	364276.67063	5027493.58255	2017-09-11	15:51	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
9126	KIRKWOOD AVE N @ CARLING AVE	364275.51505	5027494.23611	2017-12-06	18:07	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	04 - Sideswipe
9127	KIRKWOOD AVE N @ CARLING AVE	364275.03759	5027492.90423	2017-12-14	15:50	03 - Snow	03 - Loose snow	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
9128	KIRKWOOD AVE N @ CARLING AVE	364275.11187	5027494.07084	2017-11-10	14:22	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
9129	KIRKWOOD AVE N @ CARLING AVE	364274.44297	5027494.07084	2017-01-30	18:52	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
9130	KIRKWOOD AVE N @ CARLING AVE	364275.35775	5027493.53420	2017-04-17	22:35	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	04 - Sideswipe
9131	KIRKWOOD AVE N @ CARLING AVE	364275.35775	5027492.19641	2017-03-14	8:52	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
9132	KIRKWOOD AVE N @ CARLING AVE	364276.02665	5027494.20310	2017-03-18	21:31	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	02 - Non-fatal injury	05 - Turning movement
9133	KIRKWOOD AVE N @ CARLING AVE	364275.35775	5027491.52751	2017-04-22	12:02	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
9134	KIRKWOOD AVE N @ CARLING AVE	364276.69554	5027492.19641	2017-03-20	11:02	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
9135	KIRKWOOD AVE N @ CARLING AVE	364275.48855	5027493.35519	2017-12-27	19:40	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	02 - Angle
9136	KIRKWOOD AVE N @ CARLING AVE	364275.71484	5027492.62676	2017-12-27	17:40	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
8615	KIRKWOOD AVE N @ CARLING AVE	364275.5629	5027492.71	2016-03-12	0:15	01 - Clear	06 - Ice	01 - Traffic signal	02 - Intersection related	07 - Dark	02 - Non-fatal injury	03 - Rear end
8616	KIRKWOOD AVE N @ CARLING AVE	364276.3099	5027494.58	2016-05-06	8:43	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	02 - Non-fatal injury	03 - Rear end
8617	KIRKWOOD AVE N @ CARLING AVE	364275.7005	5027494.216	2016-02-22	7:00	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	03 - Dawn	02 - Non-fatal injury	07 - SMV other
8618	KIRKWOOD AVE N @ CARLING AVE	364275.5641	5027493.913	2016-08-24	12:05	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
8619	KIRKWOOD AVE N @ CARLING AVE	364276.0367	5027494.755	2016-02-26	14:54	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
8620	KIRKWOOD AVE N @ CARLING AVE	364275.1994	5027492.393	2016-02-18	6:45	01 - Clear	06 - Ice	01 - Traffic signal	02 - Intersection related	03 - Dawn	03 - P.D. only	03 - Rear end
8621	KIRKWOOD AVE N @ CARLING AVE	364274.6423	5027493.641	2016-09-05	13:20	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
8622	KIRKWOOD AVE N @ CARLING AVE	364274.5866	5027492.679	2016-06-18	9:27	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
8623	KIRKWOOD AVE N @ CARLING AVE	364275.2631	5027492.904	2016-06-29	14:06	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
8624	KIRKWOOD AVE N @ CARLING AVE	364275.0814	5027493.641	2016-02-04	9:00	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
8625	KIRKWOOD AVE N @ CARLING AVE	364275.5205	5027493.641	2016-01-29	18:44	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
8626	KIRKWOOD AVE N @ CARLING AVE	364275.9363	5027492.858	2016-01-20	17:40	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
8627	KIRKWOOD AVE N @ CARLING AVE	364275.3818	5027493.778	2016-04-08	10:24	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
8628	KIRKWOOD AVE N @ CARLING AVE	364277.4041	5027492.521	2016-01-11	17:50	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	99 - Other
8629	KIRKWOOD AVE N @ CARLING AVE	364275.8017	5027493.874	2016-03-18	10:15	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
8630	KIRKWOOD AVE N @ CARLING AVE	364274.6423	5027492.763	2016-08-19	16:36	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
8631	KIRKWOOD AVE N @ CARLING AVE	364276.0187	5027493.004	2016-03-06	10:58	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
8632	KIRKWOOD AVE N @ CARLING AVE	364276.9638	5027493.885	2016-11-21	17:26	03 - Snow	03 - Loose snow	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	04 - Sideswipe
8633	KIRKWOOD AVE N @ CARLING AVE	364276.3125	5027494.09	2016-03-02	15:48	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
8634	KIRKWOOD AVE N @ CARLING AVE	364275.2631	5027493.806	2016-06-15	14:21	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
8635	KIRKWOOD AVE N @ CARLING AVE	364275.4727	5027494.193	2016-07-27	8:46	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
8636	KIRKWOOD AVE N @ CARLING AVE	364275.2182	5027493.471	2016-07-15	17:07	02 - Rain	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
8637	KIRKWOOD AVE N @ CARLING AVE	364276.1791	5027494.3	2016-09-22	12:47	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
8638	KIRKWOOD AVE N @ CARLING AVE	364276.246	5027493.458	2016-06-13	13:04	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
8639	KIRKWOOD AVE N @ CARLING AVE	364275.7914	5027492.549	2016-07-21	19:49	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
8640	KIRKWOOD AVE N @ CARLING AVE	364275.0814	5027492.763	2016-10-10	10:20	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
8641	KIRKWOOD AVE N @ CARLING AVE	364275.5205	5027493.641	2016-11-26	12:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
8642	KIRKWOOD AVE N @ CARLING AVE	364276.0267	5027493.534	2016-02-18	10:39	03 - Snow	05 - Packed snow	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	07 - SMV other
891	KIRKWOOD AVE N @ CARLING AVE	364274.5921	5027492.248	2015-02-16	17:34	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	02 - Non-fatal injury	02 - Angle
3136	KIRKWOOD AVE N @ CARLING AVE	364275.5559	5027496.103	2015-01-13	9:12	01 - Clear	03 - Loose snow	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
3168	KIRKWOOD AVE N @ CARLING AVE	364274.7283	5027491.125	2015-01-28	17:30	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	05 - Dusk	03 - P.D. only	05 - Turning movement
3391	KIRKWOOD AVE N @ CARLING AVE	364274.5921	5027495.139	2015-03-03	10:32	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
3594	KIRKWOOD AVE N @ CARLING AVE	364276.5198	5027495.139	2015-04-02	14:52	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
3831	KIRKWOOD AVE N @ CARLING AVE	364276.4129	5027492.453	2015-07-07	18:11	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
4736	KIRKWOOD AVE N @ CARLING AVE	364276.0248	5027493.585	2015-06-29	10:29	02 - Rain	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
4990	KIRKWOOD AVE N @ CARLING AVE	364275.3041	5027495.027	2015-06-30	21:59	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	04 - Sideswipe
6238	KIRKWOOD AVE N @ CARLING AVE	364274.5921	5027494.176	2015-01-06	12:30	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
6580	KIRKWOOD AVE N @ CARLING AVE	364274.7283	5027493.052	2015-01-13	6:05	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
7487	KIRKWOOD AVE N @ CARLING AVE	364274.5921	5027496.103	2015-02-27	13:17	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
9202	KIRKWOOD AVE N @ CARLING AVE	364276.4129	5027492.453	2015-05-14	14:22	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
9556	KIRKWOOD AVE N @ CARLING AVE	364274.5834	5027493.585	2015-05-28	8:10	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	07 - SMV other
9901	KIRKWOOD AVE N @ CARLING AVE	364276.0248	5027492.864	2015-08-09	21:30	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement

11125	KIRKWOOD AVE N @ CARLING AVE	364275.1662	5027494.228	2015-12-21	11:24	04 - Freezing Rain	04 - Slush	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
12180	KIRKWOOD AVE N @ CARLING AVE	364275.3041	5027495.027	2015-11-13	20:03	02 - Rain	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
12917	KIRKWOOD AVE N @ CARLING AVE	364276.0248	5027495.027	2015-10-09	14:38	01 - Clear	02 - Wet	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
13482	KIRKWOOD AVE N @ CARLING AVE	364274.9702	5027494.256	2015-12-17	17:30	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	04 - Sideswipe
13509	KIRKWOOD AVE N @ CARLING AVE	364276.4142	5027492.09	2015-11-24	10:20	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
13786	KIRKWOOD AVE N @ CARLING AVE	364274.9702	5027492.812	2015-11-25	18:12	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
14921	KIRKWOOD AVE N @ CARLING AVE	364275.6922	5027492.812	2015-12-14	18:40	01 - Clear	02 - Wet	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	05 - Turning movement
425	KIRKWOOD AVE N @ CARLING AVE	364276.3451	5027494.895	2014-03-27	14:57	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	04 - Sideswipe
1324	KIRKWOOD AVE N @ CARLING AVE	364276.1661	5027493.534	2014-02-25	14:07	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	02 - Non-fatal injury	05 - Turning movement
2030	KIRKWOOD AVE N @ CARLING AVE	364276.6411	5027494.794	2014-12-05	15:37	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	02 - Non-fatal injury	05 - Turning movement
3870	KIRKWOOD AVE N @ CARLING AVE	364275.3972	5027494.895	2014-01-31	11:52	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
6086	KIRKWOOD AVE N @ CARLING AVE	364275.3972	5027493.947	2014-02-27	10:47	03 - Snow	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
6294	KIRKWOOD AVE N @ CARLING AVE	364276.1661	5027495.43	2014-04-28	14:37	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
6332	KIRKWOOD AVE N @ CARLING AVE	364276.3451	5027494.895	2014-04-19	14:15	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
7014	KIRKWOOD AVE N @ CARLING AVE	364276.3451	5027493.947	2014-05-21	11:39	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
7595	KIRKWOOD AVE N @ CARLING AVE	364274.4493	5027493.947	2014-05-16	17:50	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
7705	KIRKWOOD AVE N @ CARLING AVE	364275.3972	5027493.947	2014-06-16	11:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
7912	KIRKWOOD AVE N @ CARLING AVE	364276.3451	5027495.843	2014-06-27	11:00	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
8783	KIRKWOOD AVE N @ CARLING AVE	364275.3972	5027494.895	2014-06-18	10:08	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
10376	KIRKWOOD AVE N @ CARLING AVE	364276.3451	5027492.051	2014-11-02	13:15	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
11293	KIRKWOOD AVE N @ CARLING AVE	364276.1661	5027494.482	2014-11-02	13:30	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	05 - Turning movement
11531	KIRKWOOD AVE N @ CARLING AVE	364275.7329	5027493.543	2014-09-07	19:57	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	07 - Dark	03 - P.D. only	02 - Angle
12056	KIRKWOOD AVE N @ CARLING AVE	364275.691	5027495.744	2014-10-29	11:30	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
14300	KIRKWOOD AVE N @ CARLING AVE	364274.7421	5027494.009	2014-12-19	13:40	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
14427	KIRKWOOD AVE N @ CARLING AVE	364274.7421	5027493.059	2014-12-31	10:59	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	07 - SMV other
10765	MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC	364833.25	5027797.539	2015-09-04	15:11	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	03 - Rear end
10209	MERIVALE RD @ COLDREY AVE/CRERAR AVE	364895.79670	5027391.99795	2017-07-20	11:05	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
5721	MERIVALE RD @ COLDREY AVE/CRERAR AVE	364895.4245	5027392.905	2015-06-17	15:07	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	07 - SMV other
12981	MERIVALE RD @ COLDREY AVE/CRERAR AVE	364894.7038	5027392.184	2015-10-09	17:35	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	05 - Dusk	03 - P.D. only	02 - Angle
1498	MERIVALE RD @ COLDREY AVE/CRERAR AVE	364893.7399	5027391.099	2014-12-11	16:53	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	05 - Dusk	02 - Non-fatal injury	05 - Turning movement
6954	MERIVALE RD @ COLDREY AVE/CRERAR AVE	364894.2299	5027393.492	2014-04-22	13:22	02 - Rain	02 - Wet	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	05 - Turning movement
8577	MERIVALE RD @ COLDREY AVE/CRERAR AVE	364894.2299	5027391.597	2014-07-26	18:57	01 - Clear	01 - Dry	01 - Traffic signal	03 - At intersection	01 - Daylight	03 - P.D. only	02 - Angle
10087	MERIVALE RD @ COLDREY AVE/CRERAR AVE (0006176)	364894.70411	5027392.54419	2018-11-01	15:28	01 - Clear	01 - Dry	01 - Traffic signal	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
7338	MERIVALE RD @ THAMES ST	364912.9972	5027525.981	2015-04-13	11:07	01 - Clear	01 - Dry	02 - Stop sign	02 - Intersection related	01 - Daylight	03 - P.D. only	04 - Sideswipe
2757	MERIVALE RD @ THAMES ST (0006168)	364913.96111	5027526.46308	2018-03-10	19:47	01 - Clear	01 - Dry	02 - Stop sign	02 - Intersection related	07 - Dark	03 - P.D. only	03 - Rear end
4082	MERIVALE RD @ THAMES ST (0006168)	364913.63965	5027526.64138	2018-04-29	8:15	01 - Clear	01 - Dry	02 - Stop sign	02 - Intersection related	01 - Daylight	03 - P.D. only	05 - Turning movement
11539	MERIVALE RD @ THAMES ST (0006168)	364913.58664	5027526.78917	2018-12-05	8:10	01 - Clear	01 - Dry	02 - Stop sign	03 - At intersection	01 - Daylight	03 - P.D. only	03 - Rear end
4033	MERIVALE RD btwn CARLING AVE & CARLING AVE (__3ZA26R)	364893.14684	5027703.06433	2018-04-27	12:08	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	04 - Sideswipe
9762	MERIVALE RD btwn CARLING AVE & TO BE DETERMINED	364902.2933	5027689.275	2016-04-05	9:00	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	06 - SMV unattended vehicle
9770	MERIVALE RD btwn COLDREY AVE & THAMES ST	364907.6776	5027468.207	2016-12-31	11:30	01 - Clear	01 - Dry	10 - No control	04 - At/near private drive	01 - Daylight	03 - P.D. only	03 - Rear end
9648	MERIVALE RD btwn COLDREY AVE & THAMES ST	364911.4585	5027503.549	2014-08-08	9:53	01 - Clear	01 - Dry	10 - No control	04 - At/near private drive	01 - Daylight	03 - P.D. only	07 - SMV other
10417	MERIVALE RD btwn COLDREY AVE & THAMES ST	364908.2604	5027502.235	2014-11-22	16:21	02 - Rain	02 - Wet	10 - No control	01 - Non intersection	05 - Dusk	03 - P.D. only	04 - Sideswipe
11386	MERIVALE RD btwn COLDREY AVE & THAMES ST (__3ZA4NW)	364906.13052	5027469.97428	2018-11-30	17:27	01 - Clear	01 - Dry	10 - No control	01 - Non intersection	07 - Dark	03 - P.D. only	04 - Sideswipe
10328	MERIVALE RD btwn MERIVALE RD & MERIVALE RD	364929.89693	5027618.14077	2017-01-14	16:40	01 - Clear	01 - Dry	10 - No control	04 - At/near private drive	05 - Dusk	03 - P.D. only	03 - Rear end
10329	MERIVALE RD btwn MERIVALE RD & MERIVALE RD	364922.29214	5027582.53718	2017-03-01	17:57	02 - Rain	02 - Wet	10 - No control	04 - At/near private drive	05 - Dusk	02 - Non-fatal injury	05 - Turning movement
10344	MERIVALE RD btwn WESTGATE SC & CARLING AVE	364840.26593	5027787.17142	2017-12-22	14:17	03 - Snow	03 - Loose snow	10 - No control	01 - Non intersection	01 - Daylight	03 - P.D. only	03 - Rear end

Appendix E

TRANS Model Plots



TRANS Regional Model

Version 2.11 - Assigned February 19, 2020

AM Peak Hour Total Traffic Volume

1330 Carling Ave

2031 Model - Affordable Road & Transit Network

No Modifications from Base Version

User Initials: MM
Plot Prepared: February 20, 2020
EMME Scenario: 21131

TRANS

Legend

AM Peak Hour Total Traffic Volume

2000 4000 6000 8000 10000

N

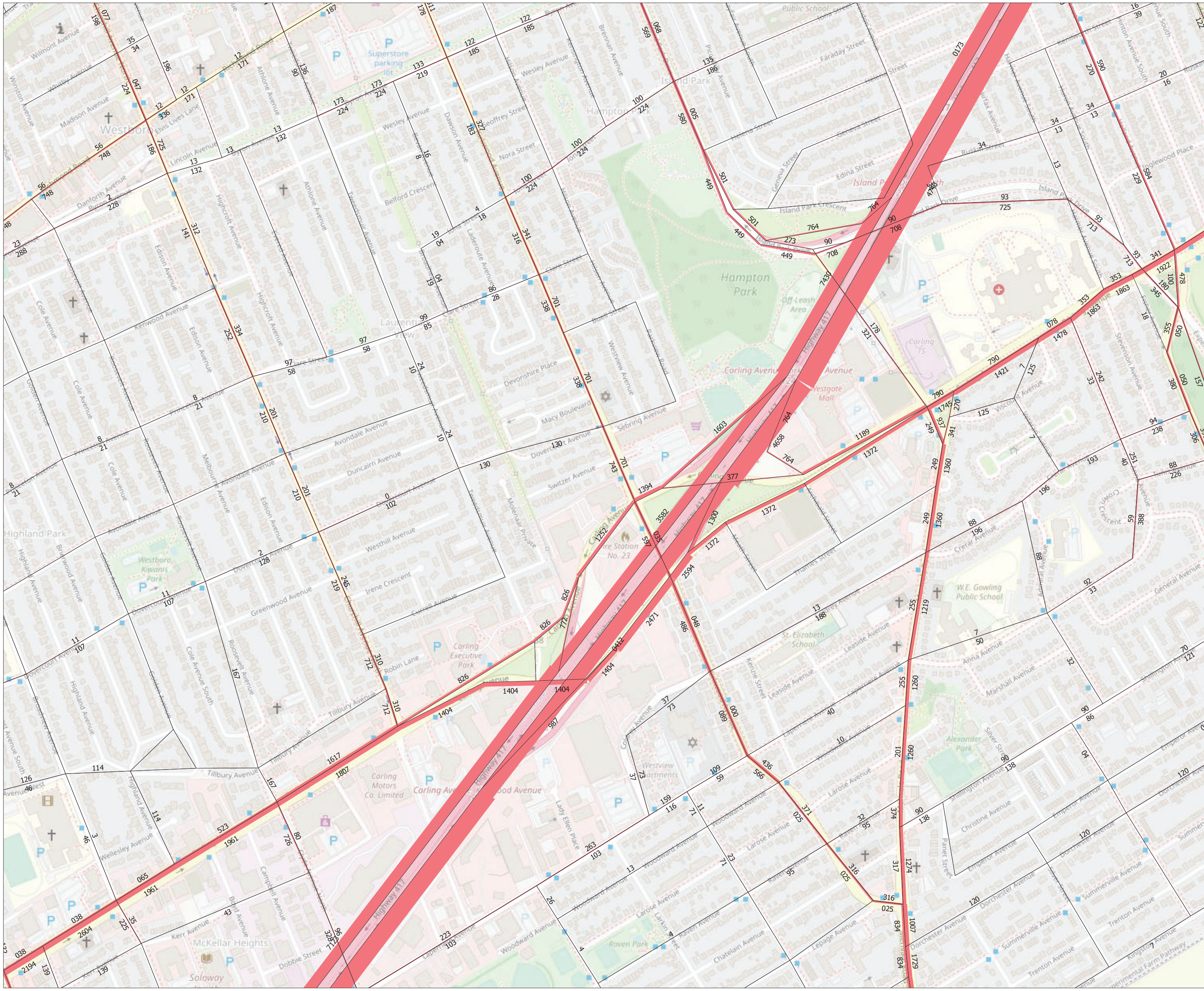
Distance (m)

50 100 150 200 250

The TRANS model is continuously refined & maintained, and all information is provided in good faith. However, model outputs are provided "as is", and no warranty or guarantee is provided as to the accuracy, reliability or reasonableness of the results. In using this data, you agree to accept any and all risks arising from any incorrect, incomplete, or misleading information.

Recipients are required to use caution and professional judgement in using and interpreting model outputs. In particular, caution should be used when focusing on a geographically limited area (such as a single road or intersection), as the model is primarily designed to simulate regional-scale phenomena and has been calibrated at a regional level.

As general good practice, it is recommended that the user confirm the network coding within the area of interest, and compare base year forecasts against traffic count data to assess the extent to which the model may be over- or under-estimating the travel demand.



TRANS Regional Model

- ersion 2.13 VAssigned Fecey ber 11, 2619

AM Peak Hour Total Traffic Volume

1330 Carling Ave

2611 Model Vf ase Scenario

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) ecipients are required to use caution and pro8essional judgey ent in using and interpreting y odel outputs. Nn particular, caution s(ould be used v (en 8ocusing on a geograp(icallB liy ited area Isuc(as a single road or intersection:, as t(e y odel is priy arilB designed to siy ulate regionalVscale p(enoy ena and (as been calibrated at a regional lehel.

As general good practice, it is recoy y ended t(at t(e user con8ry t(e netv orP coding v it(in t(e area o8interest, and coy pare base Bear 8orecasts against tra8&c count data to assess t(e extent to v (ic(t(e y odel y aB be oherVor underVestiy ating t(e trahel dey and.

Appendix F

Synchro Worksheets – 2023 Future Background Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	90	1517	211	286	266	0	0	397	355
Future Volume (vph)	0	0	0	90	1517	211	286	266	0	0	397	355
Satd. Flow (prot)	0	0	0	3216	4644	0	1658	1745	0	0	3316	1483
Flt Permitted				0.950			0.332					
Satd. Flow (perm)	0	0	0	3199	4644	0	570	1745	0	0	3316	1410
Satd. Flow (RTOR)					26							86
Lane Group Flow (vph)	0	0	0	90	1728	0	286	266	0	0	397	355
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Detector Phase				2	2		7	4			8	8
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				40.3	40.3		14.5	32.0			32.0	32.0
Total Split (s)				58.0	58.0		24.0	62.0			38.0	38.0
Total Split (%)				48.3%	48.3%		20.0%	51.7%			31.7%	31.7%
Yellow Time (s)				3.7	3.7		3.3	3.3			3.3	3.3
All-Red Time (s)				2.6	2.6		2.9	2.7			2.7	2.7
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				6.3	6.3		6.2	6.0			6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				C-Max	C-Max		None	Min			Min	Min
Act Effct Green (s)				55.8	55.8		51.7	51.9			28.0	28.0
Actuated g/C Ratio				0.46	0.46		0.43	0.43			0.23	0.23
v/c Ratio				0.06	0.79		0.70	0.35			0.51	0.90
Control Delay				19.3	31.1		25.3	15.4			41.9	59.5
Queue Delay				0.0	0.0		0.0	0.0			0.0	0.0
Total Delay				19.3	31.1		25.3	15.4			41.9	59.5
LOS				B	C		C	B			D	E
Approach Delay					30.5			20.5			50.2	
Approach LOS					C			C			D	
Queue Length 50th (m)				6.1	128.7		56.0	51.1			41.4	61.4
Queue Length 95th (m)				11.2	151.6		m81.0	m74.8			56.1	#108.5
Internal Link Dist (m)		193.0			341.6			139.1			131.1	
Turn Bay Length (m)				38.0								30.0
Base Capacity (vph)				1488	2174		406	814			884	439
Starvation Cap Reductn				0	0		0	0			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.06	0.79		0.70	0.33			0.45	0.81

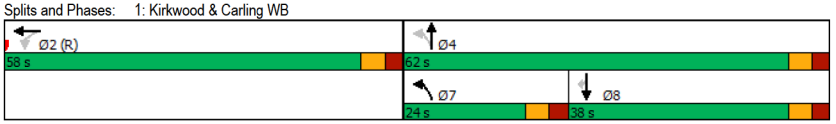
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 33.5	Intersection LOS: C
Intersection Capacity Utilization 94.0%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Kirkwood & Carling WB



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	44	14	63	212	418	62
Future Volume (vph)	44	14	63	212	418	62
Satd. Flow (prot)	1658	1483	1658	1745	1745	1483
Flt Permitted	0.950		0.518			
Satd. Flow (perm)	1641	1451	903	1745	1745	1450
Satd. Flow (RTOR)		14				62
Lane Group Flow (vph)	44	14	63	212	418	62
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	15.9	15.9	35.9	35.9
Total Split (s)	24.0	24.0	36.0	36.0	36.0	36.0
Total Split (%)	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.6	11.6	45.5	45.5	45.5	45.5
Actuated g/C Ratio	0.19	0.19	0.76	0.76	0.76	0.76
v/c Ratio	0.14	0.05	0.09	0.16	0.32	0.06
Control Delay	19.8	9.6	1.4	1.4	6.3	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	9.6	1.4	1.4	6.3	2.3
LOS	B	A	A	A	A	A
Approach Delay	17.4			1.4	5.8	
Approach LOS	B			A	A	
Queue Length 50th (m)	4.2	0.0	0.3	1.0	18.1	0.0
Queue Length 95th (m)	9.5	3.3	1.5	3.8	46.6	4.4
Internal Link Dist (m)	51.1			82.7	69.7	
Turn Bay Length (m)			35.0			50.0
Base Capacity (vph)	503	454	685	1323	1323	1114
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.09	0.16	0.32	0.06

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 8 (13%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.32

Intersection Signal Delay: 5.1	Intersection LOS: A
Intersection Capacity Utilization 56.4%	ICU Level of Service B
Analysis Period (min) 15	

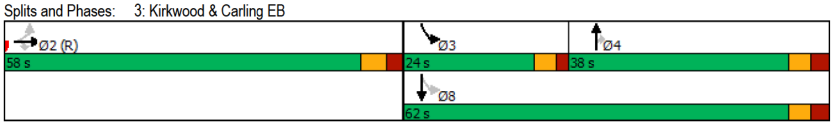
Splits and Phases: 2: Merivale & SC N

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	1816	429	0	0	0	0	440	430	315	182	0
Future Volume (vph)	128	1816	429	0	0	0	0	440	430	315	182	0
Satd. Flow (prot)	1426	4502	1483	0	0	0	0	3316	1483	1658	1745	0
Flt Permitted	0.950									0.344		
Satd. Flow (perm)	1426	4502	1396	0	0	0	0	3316	1483	600	1745	0
Satd. Flow (RTOR)			429									
Lane Group Flow (vph)	115	1829	429	0	0	0	0	440	430	315	182	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		2						4		3	8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					10.0	10.0	10.0	10.0	
Minimum Split (s)	29.2	29.2	29.2					26.1	26.1	23.1	26.1	
Total Split (s)	58.0	58.0	58.0					38.0	38.0	24.0	62.0	
Total Split (%)	48.3%	48.3%	48.3%					31.7%	31.7%	20.0%	51.7%	
Yellow Time (s)	3.7	3.7	3.7					3.3	3.3	3.3	3.3	
All-Red Time (s)	2.5	2.5	2.5					2.8	2.8	1.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2					6.1	6.1	5.1	6.1	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	C-Max					Min	Min	Min	Min	
Act Effct Green (s)	51.8	51.8	51.8					33.3	33.3	56.9	55.9	
Actuated g/C Ratio	0.43	0.43	0.43					0.28	0.28	0.47	0.47	
v/c Ratio	0.19	0.94	0.51					0.48	1.05	0.72	0.22	
Control Delay	22.1	43.6	4.3					38.6	100.1	41.0	26.3	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	22.1	43.6	4.3					38.6	100.1	41.0	26.3	
LOS	C	D	A					D	F	D	C	
Approach Delay		35.5						69.0			35.6	
Approach LOS		D						E			D	
Queue Length 50th (m)	19.0	156.9	0.0					46.2	~114.1	74.2	39.4	
Queue Length 95th (m)	33.7	#193.9	18.3					62.3	#175.4	102.9	64.7	
Internal Link Dist (m)		150.0			320.1			71.9			139.1	
Turn Bay Length (m)	50.0		200.0						80.0			
Base Capacity (vph)	615	1943	846					918	411	451	812	
Starvation Cap Reductn	0	0	0					0	0	0	0	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.19	0.94	0.51					0.48	1.05	0.70	0.22	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15 (13%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05
Intersection Signal Delay: 43.3 — Intersection LOS: D
Intersection Capacity Utilization 94.0% — ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Kirkwood & Carling EB



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1310	823	14	12	23
Future Volume (vph)	0	1310	823	14	12	23
Satd. Flow (prot)	0	3316	3316	1483	1537	0
Flt Permitted					0.983	
Satd. Flow (perm)	0	3316	3316	1402	1519	0
Satd. Flow (RTOR)				8	23	
Lane Group Flow (vph)	0	1310	823	14	35	0
Turn Type		NA	NA	Perm	Perm	
Protected Phases		2	6			
Permitted Phases				6	4	
Detector Phase		2	6	6	4	
Switch Phase						
Minimum Initial (s)		10.0	10.0	10.0	10.0	
Minimum Split (s)		15.3	42.3	42.3	38.1	
Total Split (s)		81.0	81.0	81.0	39.0	
Total Split (%)		67.5%	67.5%	67.5%	32.5%	
Yellow Time (s)		3.7	3.7	3.7	3.0	
All-Red Time (s)		1.6	1.6	1.6	3.1	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.3	5.3	5.3	6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max	C-Max	None	
Act Effct Green (s)		89.7	89.7	89.7	23.2	
Actuated g/C Ratio		0.75	0.75	0.75	0.19	
v/c Ratio		0.53	0.33	0.01	0.11	
Control Delay		5.9	3.7	1.8	18.0	
Queue Delay		0.0	0.1	0.0	0.0	
Total Delay		5.9	3.8	1.8	18.0	
LOS		A	A	A	B	
Approach Delay		5.9	3.7		18.0	
Approach LOS		A	A		B	
Queue Length 50th (m)		43.8	26.8	0.1	2.1	
Queue Length 95th (m)		m54.5	6.1	m0.2	10.1	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)				15.0		
Base Capacity (vph)		2478	2478	1049	433	
Starvation Cap Reductn		0	529	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.53	0.42	0.01	0.08	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 38 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 5.3	Intersection LOS: A
Intersection Capacity Utilization 62.1%	ICU Level of Service B
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	112	128	1118	20	5	666	43	12	2	12	27	0
Future Volume (vph)	112	128	1118	20	5	666	43	12	2	12	27	0
Satd. Flow (prot)	0	1658	3316	1483	1658	3316	1483	0	1584	0	0	1658
Flt Permitted		0.397			0.238				0.844			0.740
Satd. Flow (perm)	0	673	3316	1351	412	3316	1330	0	1363	0	0	1281
Satd. Flow (RTOR)				36			36		12			
Lane Group Flow (vph)	0	240	1118	20	5	666	43	0	26	0	0	27
Turn Type		Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases			2			6			4			8
Permitted Phases		2		2	6		6	4			8	
Detector Phase		2	2	2	6	6	6	4	4		8	8
Switch Phase												
Minimum Initial (s)		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)		23.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0		37.0	37.0
Total Split (s)		83.0	83.0	83.0	83.0	83.0	83.0	37.0	37.0		37.0	37.0
Total Split (%)		69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%		30.8%	30.8%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0		3.0	3.0
All-Red Time (s)		1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0		4.0	4.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Lost Time (s)		5.6	5.6	5.6	5.6	5.6	5.6		7.0			7.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None
Act Effct Green (s)		97.9	97.9	97.9	97.9	97.9	97.9		14.0			14.0
Actuated g/C Ratio		0.82	0.82	0.82	0.82	0.82	0.82		0.12			0.12
v/c Ratio		0.44	0.41	0.02	0.01	0.25	0.04		0.15			0.18
Control Delay		4.0	1.7	0.1	5.2	4.1	2.4		30.2			47.3
Queue Delay		0.0	0.1	0.0	0.0	0.1	0.0		0.0			0.0
Total Delay		4.0	1.8	0.1	5.2	4.2	2.4		30.2			47.3
LOS		A	A	A	A	A	A		C			D
Approach Delay			2.1			4.1			30.2			27.8
Approach LOS			A			A			C			C
Queue Length 50th (m)		5.0	12.2	0.0	0.3	16.5	0.3		3.1			6.1
Queue Length 95th (m)		6.8	13.3	m0.0	m0.9	26.7	m1.6		9.8			12.6
Internal Link Dist (m)			112.1			81.1			65.8			63.4
Turn Bay Length (m)		65.0		15.0	30.0		15.0					
Base Capacity (vph)		549	2705	1109	336	2705	1092		349			320
Starvation Cap Reductn		0	413	0	0	992	0		0			0
Spillback Cap Reductn		0	248	0	0	0	0		0			0
Storage Cap Reductn		0	0	0	0	0	0		0			0
Reduced v/c Ratio		0.44	0.49	0.02	0.01	0.39	0.04		0.07			0.08

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	39
Future Volume (vph)	39
Satd. Flow (prot)	1483
Flt Permitted	
Satd. Flow (perm)	1452
Satd. Flow (RTOR)	39
Lane Group Flow (vph)	39
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Detector Phase	8
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	37.0
Total Split (s)	37.0
Total Split (%)	30.8%
Yellow Time (s)	3.0
All-Red Time (s)	4.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	14.0
Actuated g/C Ratio	0.12
v/c Ratio	0.19
Control Delay	14.3
Queue Delay	0.0
Total Delay	14.3
LOS	B
Approach Delay	
Approach LOS	
Queue Length 50th (m)	0.0
Queue Length 95th (m)	8.6
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	392
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.10

Intersection Summary

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 3.9	Intersection LOS: A
Intersection Capacity Utilization 78.5%	ICU Level of Service D
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1059	99	157	475	40	109	237	419	37	264	132
Future Volume (vph)	0	1059	99	157	475	40	109	237	419	37	264	132
Satd. Flow (prot)	0	3316	1483	1658	3316	1483	1658	1745	1483	1658	1745	1483
Flt Permitted				0.087			0.950			0.950		
Satd. Flow (perm)	0	3316	1410	152	3316	1393	1638	1745	1437	1639	1745	1437
Satd. Flow (RTOR)			140			91			296			134
Lane Group Flow (vph)	0	1059	99	157	475	40	109	237	419	37	264	132
Turn Type		NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Detector Phase		2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)		10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)		29.0	29.0	10.4	29.0	29.0	11.3	38.7	38.7	11.3	38.7	38.7
Total Split (s)		48.0	48.0	12.0	60.0	60.0	21.0	39.0	39.0	21.0	39.0	39.0
Total Split (%)		40.0%	40.0%	10.0%	50.0%	50.0%	17.5%	32.5%	32.5%	17.5%	32.5%	32.5%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)		2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	5.4	6.0	6.0	6.3	6.7	6.7	6.3	6.7	6.7
Lead/Lag		Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)		46.5	46.5	64.6	64.0	64.0	12.3	33.8	33.8	8.2	24.7	24.7
Actuated g/C Ratio		0.39	0.39	0.54	0.53	0.53	0.10	0.28	0.28	0.07	0.21	0.21
v/c Ratio		0.82	0.16	0.67	0.27	0.05	0.64	0.48	0.68	0.33	0.74	0.33
Control Delay		28.6	1.3	37.6	17.3	0.1	68.6	39.4	17.0	57.4	50.9	10.0
Queue Delay		2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Total Delay		30.6	1.3	37.6	17.3	0.1	68.6	39.4	17.0	57.4	51.3	10.0
LOS		C	A	D	B	A	E	D	B	E	D	B
Approach Delay		28.1			21.0			31.3			39.3	
Approach LOS		C			C			C			D	
Queue Length 50th (m)		92.8	0.2	18.6	30.6	0.0	24.8	49.5	26.1	8.6	46.8	0.9
Queue Length 95th (m)		#162.0	2.5	#66.2	49.0	0.0	43.1	69.4	59.8	0.0	57.8	17.4
Internal Link Dist (m)		81.1			189.4			304.1			82.7	
Turn Bay Length (m)			15.0	70.0		15.0	50.0			30.0		50.0
Base Capacity (vph)		1284	632	233	1768	785	203	509	629	203	469	484
Starvation Cap Reductn		111	0	0	0	0	0	0	0	0	36	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.90	0.16	0.67	0.27	0.05	0.54	0.47	0.67	0.18	0.61	0.27

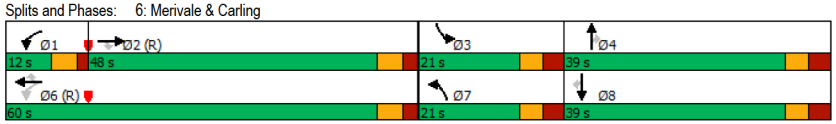
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 52 (43%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 28.9	Intersection LOS: C
Intersection Capacity Utilization 86.2%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Merivale & Carling

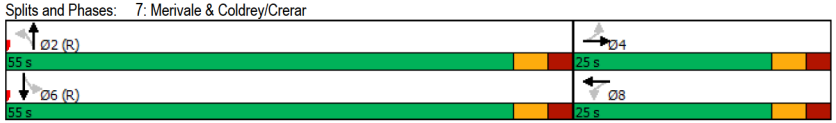


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	17	29	10	21	46	29	673	11	23	483	37
Future Volume (vph)	15	17	29	10	21	46	29	673	11	23	483	37
Satd. Flow (prot)	0	1599	0	0	1580	0	0	3301	0	0	3267	0
Flt Permitted		0.903			0.950			0.919			0.913	
Satd. Flow (perm)	0	1461	0	0	1509	0	0	3039	0	0	2988	0
Satd. Flow (RTOR)		29			46			4			17	
Lane Group Flow (vph)	0	61	0	0	77	0	0	713	0	0	543	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.8	24.8		24.8	24.8		33.8	33.8		33.8	33.8	
Total Split (s)	25.0	25.0		25.0	25.0		55.0	55.0		55.0	55.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.8			5.8			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		11.8			11.8			60.9			60.9	
Actuated g/C Ratio		0.15			0.15			0.76			0.76	
v/c Ratio		0.25			0.30			0.31			0.24	
Control Delay		20.3			17.4			4.9			4.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.3			17.4			4.9			4.4	
LOS		C			B			A			A	
Approach Delay		20.3			17.4			4.9			4.4	
Approach LOS		C			B			A			A	
Queue Length 50th (m)		4.4			4.3			16.0			11.0	
Queue Length 95th (m)		12.9			13.9			35.2			25.1	
Internal Link Dist (m)		146.9			128.0			113.1			304.1	
Turn Bay Length (m)												
Base Capacity (vph)		372			397			2315			2279	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.16			0.19			0.31			0.24	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 46 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.31	
Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 61.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Merivale & Coldrey/Crerar



Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations		↑↑	↱			↱↱		↱		
Traffic Vol, veh/h	0	1141	0	0	758	0	0	102	0	0
Future Vol, veh/h	0	1141	0	0	758	0	0	102	0	0
Conflicting Peds, #/hr	0	0	21	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	200	-	-	0	-	0	-	-
Veh in Median Storage, #	-	0	-	-	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1141	0	0	758	0	0	102	0	0

Major/Minor	Major1			Minor1	
Conflicting Flow All	-	0	0	-	592
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	449
Stage 1	0	-	-	0	-
Stage 2	0	-	-	0	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	-	-	-	-	442
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	15.6
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	442	-	-
HCM Lane V/C Ratio	0.231	-	-
HCM Control Delay (s)	15.6	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.9	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	175	2316	281	204	510	0	0	472	389
Future Volume (vph)	0	0	0	175	2316	281	204	510	0	0	472	389
Satd. Flow (prot)	0	0	0	3216	4652	0	1658	1745	0	0	3316	1483
Flt Permitted				0.950			0.266					
Satd. Flow (perm)	0	0	0	3182	4652	0	458	1745	0	0	3316	1412
Satd. Flow (RTOR)					25							86
Lane Group Flow (vph)	0	0	0	175	2597	0	204	510	0	0	472	389
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Detector Phase				2	2		7	4			8	8
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				40.3	40.3		14.5	32.0			32.0	32.0
Total Split (s)				67.0	67.0		20.0	53.0			33.0	33.0
Total Split (%)				55.8%	55.8%		16.7%	44.2%			27.5%	27.5%
Yellow Time (s)				3.7	3.7		3.3	3.3			3.3	3.3
All-Red Time (s)				2.6	2.6		2.9	2.7			2.7	2.7
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				6.3	6.3		6.2	6.0			6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				C-Max	C-Max		None	Min			Min	Min
Act Effct Green (s)				60.7	60.7		46.8	47.0			27.4	27.4
Actuated g/C Ratio				0.51	0.51		0.39	0.39			0.23	0.23
v/c Ratio				0.11	1.10		0.65	0.75			0.62	1.00
Control Delay				15.8	80.7		32.0	37.5			46.0	82.9
Queue Delay				0.0	0.0		0.0	3.8			0.0	0.0
Total Delay				15.8	80.7		32.0	41.3			46.0	82.9
LOS				B	F		C	D			D	F
Approach Delay					76.6			38.7			62.7	
Approach LOS					E			D			E	
Queue Length 50th (m)				10.7	~253.4		40.3	120.4			53.2	~77.0
Queue Length 95th (m)				16.7	#281.3		57.5	159.4			70.9	#139.9
Internal Link Dist (m)		193.0			341.6			139.1			131.1	
Turn Bay Length (m)				38.0								30.0
Base Capacity (vph)				1609	2365		316	683			756	388
Starvation Cap Reductn				0	0		0	103			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.11	1.10		0.65	0.88			0.62	1.00

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 39 (33%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10
Intersection Signal Delay: 67.6 — Intersection LOS: E
Intersection Capacity Utilization 109.2% — ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Kirkwood & Carling WB

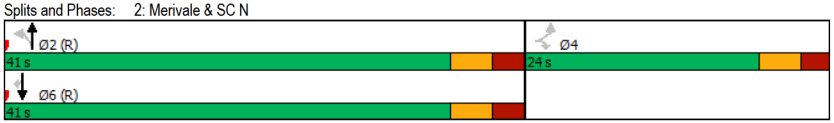
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	60	64	203	466	90
Future Volume (vph)	82	60	64	203	466	90
Satd. Flow (prot)	1658	1483	1658	1745	1745	1483
Flt Permitted	0.950		0.479			
Satd. Flow (perm)	1595	1451	835	1745	1745	1448
Satd. Flow (RTOR)		60				90
Lane Group Flow (vph)	82	60	64	203	466	90
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	15.9	15.9	35.9	35.9
Total Split (s)	24.0	24.0	41.0	41.0	41.0	41.0
Total Split (%)	36.9%	36.9%	63.1%	63.1%	63.1%	63.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.6	11.6	46.2	46.2	46.2	46.2
Actuated g/C Ratio	0.18	0.18	0.71	0.71	0.71	0.71
v/c Ratio	0.29	0.19	0.11	0.16	0.38	0.09
Control Delay	24.9	7.9	4.4	5.0	6.9	1.9
Queue Delay	0.0	0.1	0.0	0.0	0.1	0.0
Total Delay	24.9	8.0	4.4	5.0	7.0	1.9
LOS	C	A	A	A	A	A
Approach Delay	17.8			4.8	6.2	
Approach LOS	B			A	A	
Queue Length 50th (m)	8.9	0.0	0.4	1.7	20.9	0.0
Queue Length 95th (m)	16.9	7.3	19.6	64.5	52.4	5.0
Internal Link Dist (m)	51.1			82.7	69.7	
Turn Bay Length (m)			35.0			50.0
Base Capacity (vph)	451	453	593	1240	1240	1055
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	71	0	0	102	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.16	0.11	0.16	0.41	0.09

Intersection Summary
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 27 (42%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Merivale & SC N



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	405	1246	422	0	0	0	0	313	328	406	249	0
Future Volume (vph)	405	1246	422	0	0	0	0	313	328	406	249	0
Satd. Flow (prot)	1426	4493	1483	0	0	0	0	3316	1483	1658	1745	0
Flt Permitted	0.950	0.998								0.397		
Satd. Flow (perm)	1426	4493	1393	0	0	0	0	3316	1461	692	1745	0
Satd. Flow (RTOR)			420									
Lane Group Flow (vph)	364	1287	422	0	0	0	0	313	328	406	249	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		2						4		3	8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					10.0	10.0	10.0	10.0	
Minimum Split (s)	29.2	29.2	29.2					26.1	26.1	23.1	26.1	
Total Split (s)	61.0	61.0	61.0					29.0	29.0	30.0	59.0	
Total Split (%)	50.8%	50.8%	50.8%					24.2%	24.2%	25.0%	49.2%	
Yellow Time (s)	3.7	3.7	3.7					3.3	3.3	3.3	3.3	
All-Red Time (s)	2.5	2.5	2.5					2.8	2.8	1.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2					6.1	6.1	5.1	6.1	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	C-Max					Min	Min	Min	Min	
Act Effct Green (s)	54.8	54.8	54.8					24.3	24.3	53.9	52.9	
Actuated g/C Ratio	0.46	0.46	0.46					0.20	0.20	0.45	0.44	
v/c Ratio	0.56	0.63	0.49					0.47	1.11	0.81	0.32	
Control Delay	27.9	26.5	4.0					45.3	130.5	24.7	8.0	
Queue Delay	0.3	0.1	0.0					0.0	0.0	2.0	0.0	
Total Delay	28.2	26.6	4.0					45.3	130.5	26.7	8.0	
LOS	C	C	A					D	F	C	A	
Approach Delay		22.3						88.9			19.6	
Approach LOS		C						F			B	
Queue Length 50th (m)	71.0	87.3	0.3					35.0	~92.4	79.6	5.6	
Queue Length 95th (m)	105.8	103.6	17.3					49.3	#148.3	#112.6	14.3	
Internal Link Dist (m)		150.0			323.9			71.9			139.1	
Turn Bay Length (m)	50.0		200.0						80.0			
Base Capacity (vph)	651	2051	864					671	295	511	769	
Starvation Cap Reductn	0	0	0					0	0	34	0	
Spillback Cap Reductn	45	95	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.60	0.66	0.49					0.47	1.11	0.85	0.32	

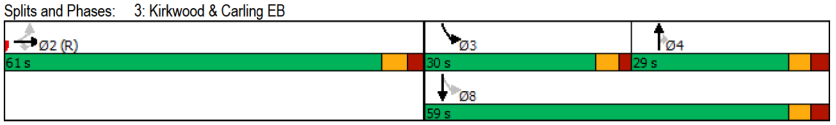
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 34.4	Intersection LOS: C
Intersection Capacity Utilization 109.2%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Kirkwood & Carling EB



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1000	1980	5	35	38
Future Volume (vph)	0	1000	1980	5	35	38
Satd. Flow (prot)	0	3316	3316	1483	1566	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	3316	3316	1382	1535	0
Satd. Flow (RTOR)				1	16	
Lane Group Flow (vph)	0	1000	1980	5	73	0
Turn Type		NA	NA	Perm	Perm	
Protected Phases		2	6			
Permitted Phases				6	4	
Detector Phase		2	6	6	4	
Switch Phase						
Minimum Initial (s)		10.0	10.0	10.0	10.0	
Minimum Split (s)		15.3	59.3	59.3	38.1	
Total Split (s)		91.0	91.0	91.0	39.0	
Total Split (%)		70.0%	70.0%	70.0%	30.0%	
Yellow Time (s)		3.7	3.7	3.7	3.0	
All-Red Time (s)		1.6	1.6	1.6	3.1	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.3	5.3	5.3	6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max	C-Max	None	
Act Effct Green (s)		99.7	99.7	99.7	23.2	
Actuated g/C Ratio		0.77	0.77	0.77	0.18	
v/c Ratio		0.39	0.78	0.00	0.26	
Control Delay		8.1	15.2	6.6	34.5	
Queue Delay		0.0	0.2	0.0	0.0	
Total Delay		8.1	15.4	6.6	34.5	
LOS		A	B	A	C	
Approach Delay		8.1	15.4		34.5	
Approach LOS		A	B		C	
Queue Length 50th (m)		59.4	89.1	0.2	11.5	
Queue Length 95th (m)		72.9	m104.8	m0.3	24.4	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)				15.0		
Base Capacity (vph)		2542	2542	1059	400	
Starvation Cap Reductn		0	117	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.39	0.82	0.00	0.18	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 107 (82%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 13.4	Intersection LOS: B
Intersection Capacity Utilization 80.8%	ICU Level of Service D
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	85	151	734	11	12	1795	84	15	1	17	79	2
Future Volume (vph)	85	151	734	11	12	1795	84	15	1	17	79	2
Satd. Flow (prot)	0	1658	3316	1483	1658	3316	1483	0	1562	0	0	1665
Flt Permitted		0.051			0.373				0.860			0.707
Satd. Flow (perm)	0	89	3316	1233	615	3316	1303	0	1355	0	0	1211
Satd. Flow (RTOR)				34			81		17			
Lane Group Flow (vph)	0	236	734	11	12	1795	84	0	33	0	0	81
Turn Type		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases		5	2			6			4			8
Permitted Phases		2		2	6		6	4			8	
Detector Phase		5	2	2	6	6	6	4	4		8	8
Switch Phase												
Minimum Initial (s)		5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)		10.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0		37.0	37.0
Total Split (s)		24.0	93.0	93.0	69.0	69.0	69.0	37.0	37.0		37.0	37.0
Total Split (%)		18.5%	71.5%	71.5%	53.1%	53.1%	53.1%	28.5%	28.5%		28.5%	28.5%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0		3.0	3.0
All-Red Time (s)		1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0		4.0	4.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Lost Time (s)		5.6	5.6	5.6	5.6	5.6	5.6		7.0			7.0
Lead/Lag		Lead			Lag	Lag	Lag					
Lead-Lag Optimize?		Yes			Yes	Yes	Yes					
Recall Mode		None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None
Act Effct Green (s)		95.1	95.1	95.1	73.5	73.5	73.5		22.3			22.3
Actuated g/C Ratio		0.73	0.73	0.73	0.57	0.57	0.57		0.17			0.17
v/c Ratio		0.92	0.30	0.01	0.03	0.96	0.11		0.13			0.39
Control Delay		77.1	2.3	0.0	4.8	23.3	1.0		25.0			50.6
Queue Delay		56.7	0.1	0.0	0.0	43.3	0.0		0.0			0.0
Total Delay		133.8	2.4	0.0	4.8	66.7	1.0		25.0			50.6
LOS		F	A	A	A	E	A		C			D
Approach Delay			34.0			63.4			25.0			29.4
Approach LOS			C			E			C			C
Queue Length 50th (m)		30.9	6.5	0.0	0.6	~277.7	1.5		3.2			17.2
Queue Length 95th (m)		#84.5	8.0	m0.0	m0.8	m#321.8	m1.9		12.0			32.2
Internal Link Dist (m)			112.1			81.1			65.8			63.4
Turn Bay Length (m)		65.0		15.0	30.0		15.0					
Base Capacity (vph)		286	2426	911	347	1875	771		325			279
Starvation Cap Reductn		0	509	0	0	276	0		0			0
Spillback Cap Reductn		78	613	0	0	6	0		2			0
Storage Cap Reductn		0	0	0	0	0	0		0			0
Reduced v/c Ratio		1.13	0.40	0.01	0.03	1.12	0.11		0.10			0.29

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 3 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	92
Future Volume (vph)	92
Satd. Flow (prot)	1483
Flt Permitted	
Satd. Flow (perm)	1415
Satd. Flow (RTOR)	92
Lane Group Flow (vph)	92
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Detector Phase	8
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	37.0
Total Split (s)	37.0
Total Split (%)	28.5%
Yellow Time (s)	3.0
All-Red Time (s)	4.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	22.3
Actuated g/C Ratio	0.17
v/c Ratio	0.29
Control Delay	10.2
Queue Delay	0.5
Total Delay	10.7
LOS	B
Approach Delay	
Approach LOS	
Queue Length 50th (m)	0.0
Queue Length 95th (m)	13.7
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	397
Starvation Cap Reductn	0
Spillback Cap Reductn	116
Storage Cap Reductn	0
Reduced v/c Ratio	0.33

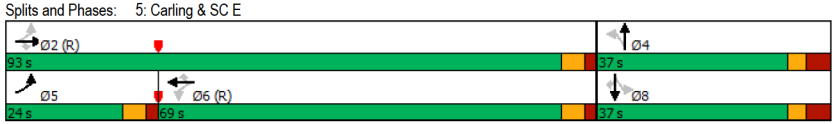
Intersection Summary

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 51.7	Intersection LOS: D
Intersection Capacity Utilization 120.1%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	700	132	438	1661	50	103	218	235	72	326	129
Future Volume (vph)	0	700	132	438	1661	50	103	218	235	72	326	129
Satd. Flow (prot)	0	3316	1483	1658	3316	1483	1658	1745	1483	1658	1745	1483
Flt Permitted				0.132			0.950			0.950		
Satd. Flow (perm)	0	3316	1405	230	3316	1354	1610	1745	1419	1621	1745	1399
Satd. Flow (RTOR)			129			84			235			123
Lane Group Flow (vph)	0	700	132	438	1661	50	103	218	235	72	326	129
Turn Type		NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Detector Phase		2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)		10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)		29.0	29.0	10.4	29.0	29.0	11.3	38.7	38.7	11.3	38.7	38.7
Total Split (s)		38.0	38.0	33.0	71.0	71.0	20.0	39.0	39.0	20.0	39.0	39.0
Total Split (%)		29.2%	29.2%	25.4%	54.6%	54.6%	15.4%	30.0%	30.0%	15.4%	30.0%	30.0%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)		2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	5.4	6.0	6.0	6.3	6.7	6.7	6.3	6.7	6.7
Lead/Lag		Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)		33.2	33.2	70.9	70.3	70.3	12.0	32.6	32.6	10.6	28.7	28.7
Actuated g/C Ratio		0.26	0.26	0.55	0.54	0.54	0.09	0.25	0.25	0.08	0.22	0.22
v/c Ratio		0.83	0.29	0.92	0.93	0.06	0.68	0.50	0.44	0.53	0.85	0.32
Control Delay		50.5	7.6	60.5	38.7	1.1	78.5	46.4	7.5	65.1	67.6	13.7
Queue Delay		7.9	0.0	0.0	45.8	0.0	0.0	0.0	0.0	0.0	11.7	0.1
Total Delay		58.4	7.6	60.5	84.5	1.1	78.5	46.4	7.5	65.1	79.3	13.8
LOS		E	A	E	F	A	E	D	A	E	E	B
Approach Delay		50.3			77.7			35.9			61.3	
Approach LOS		D			E			D			E	
Queue Length 50th (m)		92.7	8.6	~100.8	215.6	0.0	25.7	47.2	0.0	17.9	66.9	5.7
Queue Length 95th (m)		#120.5	20.9	#167.6	#275.6	2.0	44.7	73.2	20.4	33.4	#106.3	22.6
Internal Link Dist (m)		81.1			189.4			304.1			82.7	
Turn Bay Length (m)			15.0	70.0		15.0	50.0			30.0		50.0
Base Capacity (vph)		846	455	474	1793	770	174	449	540	174	433	440
Starvation Cap Reductn		116	0	0	0	0	0	0	0	0	86	0
Spillback Cap Reductn		0	0	0	494	0	0	0	0	0	0	18
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.96	0.29	0.92	1.28	0.06	0.59	0.49	0.44	0.41	0.94	0.31

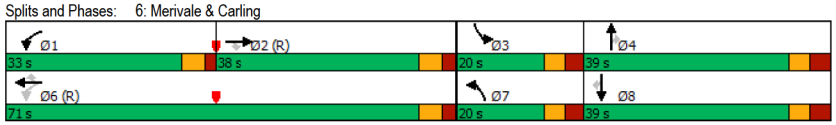
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 15 (12%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 64.2	Intersection LOS: E
Intersection Capacity Utilization 96.6%	ICU Level of Service F
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Merivale & Carling



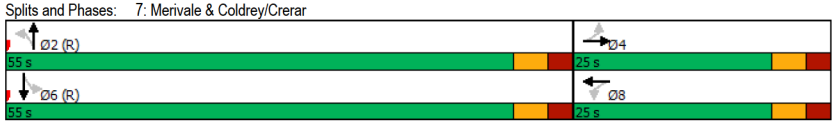
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	68	19	27	56	27	12	485	9	43	766	50
Future Volume (vph)	22	68	19	27	56	27	12	485	9	43	766	50
Satd. Flow (prot)	0	1682	0	0	1662	0	0	3300	0	0	3272	0
Flt Permitted		0.917			0.897			0.933			0.906	
Satd. Flow (perm)	0	1558	0	0	1508	0	0	3082	0	0	2969	0
Satd. Flow (RTOR)		13			19			4			15	
Lane Group Flow (vph)	0	109	0	0	110	0	0	506	0	0	859	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.8	24.8		24.8	24.8		33.8	33.8		33.8	33.8	
Total Split (s)	25.0	25.0		25.0	25.0		55.0	55.0		55.0	55.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.8			5.8			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		12.3			12.3			60.5			60.5	
Actuated g/C Ratio		0.15			0.15			0.76			0.76	
v/c Ratio		0.44			0.45			0.22			0.38	
Control Delay		31.7			30.3			4.5			5.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		31.7			30.3			4.5			5.5	
LOS		C			C			A			A	
Approach Delay		31.7			30.3			4.5			5.5	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		13.8			13.1			10.5			20.7	
Queue Length 95th (m)		25.1			24.5			23.5			44.5	
Internal Link Dist (m)		146.9			128.0			113.1			304.1	
Turn Bay Length (m)												
Base Capacity (vph)		383			376			2330			2247	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.28			0.29			0.22			0.38	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 63 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 8.7	Intersection LOS: A
Intersection Capacity Utilization 72.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Merivale & Coldrey/Crerar



Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations		↑↑	↱			↱↱		↱		
Traffic Vol, veh/h	0	900	0	0	1927	0	0	73	0	0
Future Vol, veh/h	0	900	0	0	1927	0	0	73	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	200	-	-	0	-	0	-	-
Veh in Median Storage, #	-	0	-	-	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	900	0	0	1927	0	0	73	0	0

Major/Minor	Major1			Minor1	
Conflicting Flow All	-	0	0	-	450
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	556
Stage 1	0	-	-	0	-
Stage 2	0	-	-	0	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	-	-	-	-	556
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	12.5
HCM LOS		B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	556	-	-
HCM Lane V/C Ratio	0.131	-	-
HCM Control Delay (s)	12.5	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.5	-	-

Appendix G

Synchro Worksheets – 2028 Future Background Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	92	1590	222	301	279	0	0	417	374
Future Volume (vph)	0	0	0	92	1590	222	301	279	0	0	417	374
Satd. Flow (prot)	0	0	0	3216	4644	0	1658	1745	0	0	3316	1483
Flt Permitted				0.950			0.324					
Satd. Flow (perm)	0	0	0	3199	4644	0	556	1745	0	0	3316	1410
Satd. Flow (RTOR)					26							86
Lane Group Flow (vph)	0	0	0	92	1812	0	301	279	0	0	417	374
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Detector Phase				2	2		7	4			8	8
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				40.3	40.3		14.5	32.0			32.0	32.0
Total Split (s)				58.0	58.0		24.0	62.0			38.0	38.0
Total Split (%)				48.3%	48.3%		20.0%	51.7%			31.7%	31.7%
Yellow Time (s)				3.7	3.7		3.3	3.3			3.3	3.3
All-Red Time (s)				2.6	2.6		2.9	2.7			2.7	2.7
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				6.3	6.3		6.2	6.0			6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				C-Max	C-Max		None	Min			Min	Min
Act Effct Green (s)				54.5	54.5		53.0	53.2			29.2	29.2
Actuated g/C Ratio				0.45	0.45		0.44	0.44			0.24	0.24
v/c Ratio				0.06	0.85		0.74	0.36			0.52	0.92
Control Delay				15.6	29.7		26.6	15.1			41.3	62.0
Queue Delay				0.0	0.0		0.0	0.0			0.0	0.0
Total Delay				15.6	29.7		26.6	15.1			41.3	62.0
LOS				B	C		C	B			D	E
Approach Delay					29.0			21.1			51.1	
Approach LOS					C			C			D	
Queue Length 50th (m)				4.4	142.2		59.4	54.0			43.4	66.4
Queue Length 95th (m)				7.9	165.6		m84.5	m78.2			58.8	#118.5
Internal Link Dist (m)		193.0			341.6			139.1			131.1	
Turn Bay Length (m)				38.0								30.0
Base Capacity (vph)				1454	2124		409	814			884	439
Starvation Cap Reductn				0	0		0	0			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.06	0.85		0.74	0.34			0.47	0.85

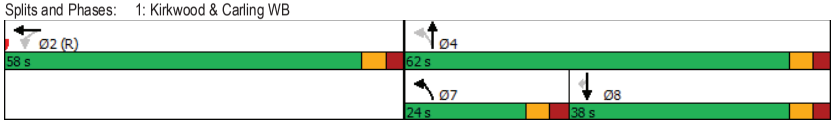
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.0	Intersection LOS: C
Intersection Capacity Utilization 97.9%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Kirkwood & Carling WB



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	44	14	63	223	440	62
Future Volume (vph)	44	14	63	223	440	62
Satd. Flow (prot)	1658	1483	1658	1745	1745	1483
Flt Permitted	0.950		0.504			
Satd. Flow (perm)	1641	1451	879	1745	1745	1450
Satd. Flow (RTOR)		14				62
Lane Group Flow (vph)	44	14	63	223	440	62
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	15.9	15.9	35.9	35.9
Total Split (s)	24.0	24.0	36.0	36.0	36.0	36.0
Total Split (%)	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.6	11.6	45.5	45.5	45.5	45.5
Actuated g/C Ratio	0.19	0.19	0.76	0.76	0.76	0.76
v/c Ratio	0.14	0.05	0.09	0.17	0.33	0.06
Control Delay	19.8	9.6	1.4	1.3	6.4	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	9.6	1.4	1.3	6.4	2.3
LOS	B	A	A	A	A	A
Approach Delay	17.4			1.3	5.9	
Approach LOS	B			A	A	
Queue Length 50th (m)	4.2	0.0	0.3	1.1	19.3	0.0
Queue Length 95th (m)	9.5	3.3	1.6	4.1	49.8	4.4
Internal Link Dist (m)	51.1			82.7	69.7	
Turn Bay Length (m)			35.0			50.0
Base Capacity (vph)	503	454	666	1323	1323	1114
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.09	0.17	0.33	0.06

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 8 (13%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 5.2	Intersection LOS: A
Intersection Capacity Utilization 56.4%	ICU Level of Service B
Analysis Period (min) 15	

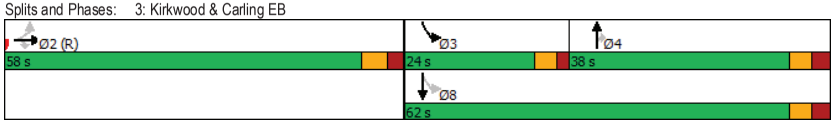
Splits and Phases: 2: Merivale & SC N

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	1907	450	0	0	0	0	462	451	330	191	0
Future Volume (vph)	134	1907	450	0	0	0	0	462	451	330	191	0
Satd. Flow (prot)	1426	4502	1483	0	0	0	0	3316	1483	1658	1745	0
Flt Permitted	0.950									0.324		
Satd. Flow (perm)	1426	4502	1396	0	0	0	0	3316	1483	565	1745	0
Satd. Flow (RTOR)			450									
Lane Group Flow (vph)	121	1920	450	0	0	0	0	462	451	330	191	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		2						4		3	8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					10.0	10.0	10.0	10.0	
Minimum Split (s)	29.2	29.2	29.2					26.1	26.1	23.1	26.1	
Total Split (s)	58.0	58.0	58.0					38.0	38.0	24.0	62.0	
Total Split (%)	48.3%	48.3%	48.3%					31.7%	31.7%	20.0%	51.7%	
Yellow Time (s)	3.7	3.7	3.7					3.3	3.3	3.3	3.3	
All-Red Time (s)	2.5	2.5	2.5					2.8	2.8	1.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2					6.1	6.1	5.1	6.1	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	C-Max					Min	Min	Min	Min	
Act Effct Green (s)	51.8	51.8	51.8					32.8	32.8	56.9	55.9	
Actuated g/C Ratio	0.43	0.43	0.43					0.27	0.27	0.47	0.47	
v/c Ratio	0.20	0.99	0.52					0.51	1.11	0.77	0.24	
Control Delay	22.3	51.9	4.4					39.5	120.0	43.7	26.1	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	22.3	51.9	4.4					39.5	120.0	43.7	26.1	
LOS	C	D	A					D	F	D	C	
Approach Delay		41.8						79.3			37.3	
Approach LOS		D						E			D	
Queue Length 50th (m)	20.2	170.5	0.0					48.9	~124.4	77.4	39.4	
Queue Length 95th (m)	35.1	#211.2	18.9					65.4	#186.6	#106.7	65.5	
Internal Link Dist (m)		150.0			320.1			71.9			139.1	
Turn Bay Length (m)	50.0		200.0						80.0			
Base Capacity (vph)	615	1943	858					906	405	440	812	
Starvation Cap Reductn	0	0	0					0	0	0	0	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.20	0.99	0.52					0.51	1.11	0.75	0.24	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15 (13%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11
Intersection Signal Delay: 49.9 Intersection LOS: D
Intersection Capacity Utilization 97.9% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Kirkwood & Carling EB



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1368	860	14	12	23
Future Volume (vph)	0	1368	860	14	12	23
Satd. Flow (prot)	0	3316	3316	1483	1537	0
Flt Permitted					0.983	
Satd. Flow (perm)	0	3316	3316	1402	1519	0
Satd. Flow (RTOR)				7	23	
Lane Group Flow (vph)	0	1368	860	14	35	0
Turn Type		NA	NA	Perm	Perm	
Protected Phases		2	6			
Permitted Phases				6	4	
Detector Phase		2	6	6	4	
Switch Phase						
Minimum Initial (s)		10.0	10.0	10.0	10.0	
Minimum Split (s)		15.3	42.3	42.3	38.1	
Total Split (s)		81.0	81.0	81.0	39.0	
Total Split (%)		67.5%	67.5%	67.5%	32.5%	
Yellow Time (s)		3.7	3.7	3.7	3.0	
All-Red Time (s)		1.6	1.6	1.6	3.1	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.3	5.3	5.3	6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max	C-Max	None	
Act Effct Green (s)		89.7	89.7	89.7	23.2	
Actuated g/C Ratio		0.75	0.75	0.75	0.19	
v/c Ratio		0.55	0.35	0.01	0.11	
Control Delay		6.1	3.7	1.9	18.0	
Queue Delay		0.0	0.1	0.0	0.0	
Total Delay		6.1	3.8	1.9	18.0	
LOS		A	A	A	B	
Approach Delay		6.1	3.8		18.0	
Approach LOS		A	A		B	
Queue Length 50th (m)		46.2	28.4	0.1	2.1	
Queue Length 95th (m)		m54.8	6.3	m0.3	10.1	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)				15.0		
Base Capacity (vph)		2478	2478	1049	433	
Starvation Cap Reductn		0	495	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.55	0.43	0.01	0.08	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 38 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 5.4	Intersection LOS: A
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	112	128	1170	20	1	5	700	43	12	2	12	27
Future Volume (vph)	112	128	1170	20	1	5	700	43	12	2	12	27
Satd. Flow (prot)	0	1658	3316	1483	0	1658	3316	1483	0	1584	0	0
Flt Permitted		0.383				0.224				0.844		
Satd. Flow (perm)	0	650	3316	1351	0	388	3316	1330	0	1363	0	0
Satd. Flow (RTOR)				36				36		12		
Lane Group Flow (vph)	0	240	1170	20	0	6	700	43	0	26	0	0
Turn Type	Perm	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm
Protected Phases			2				6			4		
Permitted Phases	2	2		2	6	6		6	4			8
Detector Phase	2	2	2	2	6	6	6	6	4	4		8
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0
Minimum Split (s)	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0		37.0
Total Split (s)	83.0	83.0	83.0	83.0	83.0	83.0	83.0	83.0	37.0	37.0		37.0
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%		30.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0		3.0
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0		4.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0		
Total Lost Time (s)		5.6	5.6	5.6		5.6	5.6	5.6		7.0		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None
Act Effct Green (s)		97.9	97.9	97.9		97.9	97.9	97.9		14.0		
Actuated g/C Ratio		0.82	0.82	0.82		0.82	0.82	0.82		0.12		
v/c Ratio		0.45	0.43	0.02		0.02	0.26	0.04		0.15		
Control Delay		4.4	1.7	0.1		5.2	4.1	2.4		30.2		
Queue Delay		0.0	0.1	0.0		0.0	0.1	0.0		0.0		
Total Delay		4.4	1.8	0.1		5.2	4.2	2.4		30.2		
LOS		A	A	A		A	A	A		C		
Approach Delay			2.2				4.1			30.2		
Approach LOS			A				A			C		
Queue Length 50th (m)		4.8	12.3	0.0		0.3	17.4	0.3		3.1		
Queue Length 95th (m)		6.6	13.4	m0.0		m1.1	28.0	m1.7		9.8		
Internal Link Dist (m)			112.1				81.1			65.8		
Turn Bay Length (m)		65.0		15.0		30.0		15.0				
Base Capacity (vph)		530	2705	1109		316	2705	1092		349		
Starvation Cap Reductn		0	405	0		0	939	0		0		
Spillback Cap Reductn		0	316	0		0	0	0		0		
Storage Cap Reductn		0	0	0		0	0	0		0		
Reduced v/c Ratio		0.45	0.51	0.02		0.02	0.40	0.04		0.07		

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	39
Future Volume (vph)	0	39
Satd. Flow (prot)	1658	1483
Flt Permitted	0.740	
Satd. Flow (perm)	1281	1452
Satd. Flow (RTOR)		39
Lane Group Flow (vph)	27	39
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	37.0	37.0
Total Split (s)	37.0	37.0
Total Split (%)	30.8%	30.8%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	4.0	4.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.0	7.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)	14.0	14.0
Actuated g/C Ratio	0.12	0.12
v/c Ratio	0.18	0.19
Control Delay	47.3	14.3
Queue Delay	0.0	0.0
Total Delay	47.3	14.3
LOS	D	B
Approach Delay	27.8	
Approach LOS	C	
Queue Length 50th (m)	6.1	0.0
Queue Length 95th (m)	12.6	8.6
Internal Link Dist (m)	63.4	
Turn Bay Length (m)		
Base Capacity (vph)	320	392
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.08	0.10

Intersection Summary

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 3.9	Intersection LOS: A
Intersection Capacity Utilization 79.5%	ICU Level of Service D
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1109	103	165	499	42	115	249	441	39	277	139
Future Volume (vph)	0	1109	103	165	499	42	115	249	441	39	277	139
Satd. Flow (prot)	0	3316	1483	1658	3316	1483	1658	1745	1483	1658	1745	1483
Flt Permitted				0.084			0.950			0.950		
Satd. Flow (perm)	0	3316	1410	147	3316	1393	1639	1745	1437	1639	1745	1437
Satd. Flow (RTOR)			140			91			290			139
Lane Group Flow (vph)	0	1109	103	165	499	42	115	249	441	39	277	139
Turn Type		NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Detector Phase		2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)		10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)		29.0	29.0	10.4	29.0	29.0	11.3	38.7	38.7	11.3	38.7	38.7
Total Split (s)		48.0	48.0	12.0	60.0	60.0	21.0	39.0	39.0	21.0	39.0	39.0
Total Split (%)		40.0%	40.0%	10.0%	50.0%	50.0%	17.5%	32.5%	32.5%	17.5%	32.5%	32.5%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)		2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	5.4	6.0	6.0	6.3	6.7	6.7	6.3	6.7	6.7
Lead/Lag		Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)		44.9	44.9	63.9	63.3	63.3	12.5	34.5	34.5	8.3	25.2	25.2
Actuated g/C Ratio		0.37	0.37	0.53	0.53	0.53	0.10	0.29	0.29	0.07	0.21	0.21
v/c Ratio		0.90	0.17	0.68	0.29	0.05	0.66	0.50	0.71	0.34	0.76	0.34
Control Delay		34.8	1.6	39.6	17.8	0.1	69.9	39.4	19.6	57.6	51.6	10.1
Queue Delay		4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0
Total Delay		39.6	1.6	39.6	17.8	0.1	69.9	39.4	19.6	57.6	52.2	10.1
LOS		D	A	D	B	A	E	D	B	E	D	B
Approach Delay		36.4			21.9			32.9			39.8	
Approach LOS		D			C			C			D	
Queue Length 50th (m)		118.3	0.3	21.5	33.2	0.0	26.2	51.7	33.5	9.1	48.4	6.1
Queue Length 95th (m)		#172.8	3.3	#73.2	51.8	0.0	45.3	72.9	69.6	0.0	59.9	18.3
Internal Link Dist (m)		81.1			189.4			304.1			82.7	
Turn Bay Length (m)			15.0	70.0		15.0	50.0			30.0		50.0
Base Capacity (vph)		1239	614	241	1748	777	203	512	626	203	469	488
Starvation Cap Reductn		88	0	0	0	0	0	0	0	0	39	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.96	0.17	0.68	0.29	0.05	0.57	0.49	0.70	0.19	0.64	0.28

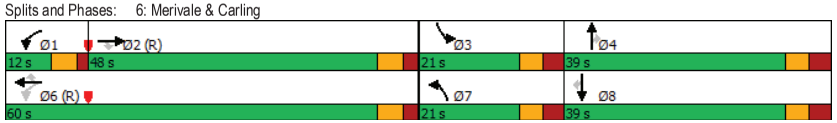
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 52 (43%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 32.8	Intersection LOS: C
Intersection Capacity Utilization 88.9%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Merivale & Carling



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	17	29	10	21	46	29	707	11	23	506	37
Future Volume (vph)	15	17	29	10	21	46	29	707	11	23	506	37
Satd. Flow (prot)	0	1599	0	0	1580	0	0	3301	0	0	3267	0
Flt Permitted		0.903			0.950			0.920			0.912	
Satd. Flow (perm)	0	1461	0	0	1509	0	0	3042	0	0	2986	0
Satd. Flow (RTOR)		29			46			3			17	
Lane Group Flow (vph)	0	61	0	0	77	0	0	747	0	0	566	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.8	24.8		24.8	24.8		33.8	33.8		33.8	33.8	
Total Split (s)	25.0	25.0		25.0	25.0		55.0	55.0		55.0	55.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.8			5.8			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		11.8			11.8			60.9			60.9	
Actuated g/C Ratio		0.15			0.15			0.76			0.76	
v/c Ratio		0.25			0.30			0.32			0.25	
Control Delay		20.3			17.4			4.9			4.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.3			17.4			4.9			4.4	
LOS		C			B			A			A	
Approach Delay		20.3			17.4			4.9			4.4	
Approach LOS		C			B			A			A	
Queue Length 50th (m)		4.4			4.3			17.1			11.6	
Queue Length 95th (m)		12.9			13.9			37.3			26.4	
Internal Link Dist (m)		146.9			128.0			113.1			304.1	
Turn Bay Length (m)												
Base Capacity (vph)		372			397			2317			2278	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.16			0.19			0.32			0.25	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 46 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.32

Intersection Signal Delay: 6.1	Intersection LOS: A
Intersection Capacity Utilization 62.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Merivale & Coldrey/Crerar

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations		↑↑	↱			↱↱		↱		
Traffic Vol, veh/h	0	1198	0	0	0	797	0	102	0	0
Future Vol, veh/h	0	1198	0	0	0	797	0	102	0	0
Conflicting Peds, #/hr	0	0	21	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	200	-	-	0	-	0	-	-
Veh in Median Storage, #	-	0	-	-	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1198	0	0	0	797	0	102	0	0

Major/Minor	Major1			Minor1	
Conflicting Flow All	-	0	0	-	620
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	431
Stage 1	0	-	-	0	-
Stage 2	0	-	-	0	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	-	-	-	-	424
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	16.2
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	424	-	-
HCM Lane V/C Ratio	0.241	-	-
HCM Control Delay (s)	16.2	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.9	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	181	2429	295	214	536	0	0	496	409
Future Volume (vph)	0	0	0	181	2429	295	214	536	0	0	496	409
Satd. Flow (prot)	0	0	0	3216	4652	0	1658	1745	0	0	3316	1483
Flt Permitted				0.950			0.247					
Satd. Flow (perm)	0	0	0	3182	4652	0	426	1745	0	0	3316	1412
Satd. Flow (RTOR)					25							86
Lane Group Flow (vph)	0	0	0	181	2724	0	214	536	0	0	496	409
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Detector Phase				2	2		7	4			8	8
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				40.3	40.3		14.5	32.0			32.0	32.0
Total Split (s)				67.0	67.0		20.0	53.0			33.0	33.0
Total Split (%)				55.8%	55.8%		16.7%	44.2%			27.5%	27.5%
Yellow Time (s)				3.7	3.7		3.3	3.3			3.3	3.3
All-Red Time (s)				2.6	2.6		2.9	2.7			2.7	2.7
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				6.3	6.3		6.2	6.0			6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				C-Max	C-Max		None	Min			Min	Min
Act Effct Green (s)				60.7	60.7		46.8	47.0			27.3	27.3
Actuated g/C Ratio				0.51	0.51		0.39	0.39			0.23	0.23
v/c Ratio				0.11	1.15		0.70	0.78			0.66	1.06
Control Delay				15.8	102.6		34.4	39.0			47.1	97.3
Queue Delay				0.0	0.0		0.0	6.2			0.0	0.0
Total Delay				15.8	102.6		34.4	45.2			47.1	97.3
LOS				B	F		C	D			D	F
Approach Delay					97.2			42.1			69.8	
Approach LOS					F			D			E	
Queue Length 50th (m)				11.1	~276.5		41.8	127.8			56.4	~89.6
Queue Length 95th (m)				17.2	#304.1		#61.0	168.5			74.7	#150.9
Internal Link Dist (m)		193.0			341.6			139.1			131.1	
Turn Bay Length (m)				38.0								30.0
Base Capacity (vph)				1609	2365		307	683			754	387
Starvation Cap Reductn				0	0		0	103			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.11	1.15		0.70	0.92			0.66	1.06

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 39 (33%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

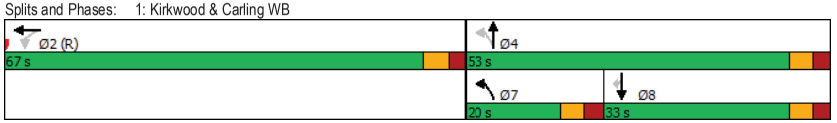
Maximum v/c Ratio: 1.15

Intersection Signal Delay: 82.7	Intersection LOS: F
Intersection Capacity Utilization 139.9%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Kirkwood & Carling WB



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	60	64	213	489	90
Future Volume (vph)	82	60	64	213	489	90
Satd. Flow (prot)	1658	1483	1658	1745	1745	1483
Flt Permitted	0.950		0.463			
Satd. Flow (perm)	1595	1451	807	1745	1745	1448
Satd. Flow (RTOR)		60				90
Lane Group Flow (vph)	82	60	64	213	489	90
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	15.9	15.9	35.9	35.9
Total Split (s)	24.0	24.0	41.0	41.0	41.0	41.0
Total Split (%)	36.9%	36.9%	63.1%	63.1%	63.1%	63.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.6	11.6	46.2	46.2	46.2	46.2
Actuated g/C Ratio	0.18	0.18	0.71	0.71	0.71	0.71
v/c Ratio	0.29	0.19	0.11	0.17	0.39	0.09
Control Delay	24.9	7.9	4.2	4.8	7.1	1.9
Queue Delay	0.0	0.1	0.0	0.0	0.1	0.0
Total Delay	24.9	8.0	4.2	4.8	7.2	1.9
LOS	C	A	A	A	A	A
Approach Delay	17.8			4.7	6.4	
Approach LOS	B			A	A	
Queue Length 50th (m)	8.9	0.0	0.4	1.4	22.3	0.0
Queue Length 95th (m)	16.9	7.3	18.5	67.5	56.0	5.0
Internal Link Dist (m)	51.1			82.7	69.7	
Turn Bay Length (m)			35.0			50.0
Base Capacity (vph)	451	453	573	1240	1240	1055
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	71	0	0	108	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.16	0.11	0.17	0.43	0.09

Intersection Summary
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 27 (42%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 58.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Merivale & SC N

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	426	1303	444	0	0	0	0	329	344	424	262	0
Future Volume (vph)	426	1303	444	0	0	0	0	329	344	424	262	0
Satd. Flow (prot)	1426	4493	1483	0	0	0	0	3316	1483	1658	1745	0
Flt Permitted	0.950	0.998								0.376		
Satd. Flow (perm)	1426	4493	1393	0	0	0	0	3316	1461	656	1745	0
Satd. Flow (RTOR)			403									
Lane Group Flow (vph)	383	1346	444	0	0	0	0	329	344	424	262	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		2						4		3	8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					10.0	10.0	10.0	10.0	
Minimum Split (s)	29.2	29.2	29.2					26.1	26.1	23.1	26.1	
Total Split (s)	61.0	61.0	61.0					29.0	29.0	30.0	59.0	
Total Split (%)	50.8%	50.8%	50.8%					24.2%	24.2%	25.0%	49.2%	
Yellow Time (s)	3.7	3.7	3.7					3.3	3.3	3.3	3.3	
All-Red Time (s)	2.5	2.5	2.5					2.8	2.8	1.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2					6.1	6.1	5.1	6.1	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	C-Max					Min	Min	Min	Min	
Act Effct Green (s)	54.8	54.8	54.8					23.8	23.8	53.9	52.9	
Actuated g/C Ratio	0.46	0.46	0.46					0.20	0.20	0.45	0.44	
v/c Ratio	0.59	0.66	0.52					0.50	1.19	0.86	0.34	
Control Delay	28.8	27.2	5.4					46.2	157.0	28.7	8.0	
Queue Delay	0.4	0.1	0.0					0.0	0.0	0.0	0.0	
Total Delay	29.2	27.3	5.4					46.2	157.0	28.7	8.0	
LOS	C	C	A					D	F	C	A	
Approach Delay		23.1						102.8			20.8	
Approach LOS		C						F			C	
Queue Length 50th (m)	76.1	93.1	5.3					37.0	~100.3	84.4	5.8	
Queue Length 95th (m)	112.9	110.0	27.1					51.7	#157.1	#116.1	15.5	
Internal Link Dist (m)		150.0			323.9			71.9			139.1	
Turn Bay Length (m)	50.0		200.0						80.0			
Base Capacity (vph)	651	2051	855					657	289	502	769	
Starvation Cap Reductn	0	0	0					0	0	0	0	
Spillback Cap Reductn	48	101	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.64	0.69	0.52					0.50	1.19	0.84	0.34	

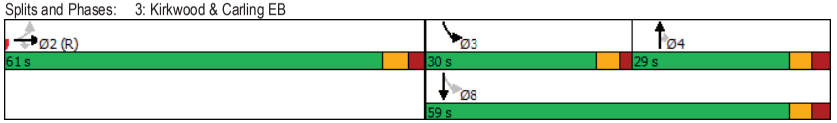
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 37.9	Intersection LOS: D
Intersection Capacity Utilization 139.9%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Kirkwood & Carling EB



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1044	2076	5	35	38
Future Volume (vph)	0	1044	2076	5	35	38
Satd. Flow (prot)	0	3316	3316	1483	1566	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	3316	3316	1382	1535	0
Satd. Flow (RTOR)				1	13	
Lane Group Flow (vph)	0	1044	2076	5	73	0
Turn Type		NA	NA	Perm	Perm	
Protected Phases		2	6			
Permitted Phases				6	4	
Detector Phase		2	6	6	4	
Switch Phase						
Minimum Initial (s)		10.0	10.0	10.0	10.0	
Minimum Split (s)		15.3	59.3	59.3	38.1	
Total Split (s)		91.0	91.0	91.0	39.0	
Total Split (%)		70.0%	70.0%	70.0%	30.0%	
Yellow Time (s)		3.7	3.7	3.7	3.0	
All-Red Time (s)		1.6	1.6	1.6	3.1	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.3	5.3	5.3	6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max	C-Max	None	
Act Effct Green (s)		99.7	99.7	99.7	23.2	
Actuated g/C Ratio		0.77	0.77	0.77	0.18	
v/c Ratio		0.41	0.82	0.00	0.26	
Control Delay		8.3	16.9	6.6	36.3	
Queue Delay		0.0	0.4	0.0	0.0	
Total Delay		8.3	17.3	6.6	36.3	
LOS		A	B	A	D	
Approach Delay		8.3	17.2		36.3	
Approach LOS		A	B		D	
Queue Length 50th (m)		63.3	107.0	0.2	12.1	
Queue Length 95th (m)		77.4	m106.0	m0.3	25.1	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)				15.0		
Base Capacity (vph)		2542	2542	1059	398	
Starvation Cap Reductn		0	117	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.41	0.86	0.00	0.18	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 107 (82%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 14.7	Intersection LOS: B
Intersection Capacity Utilization 83.6%	ICU Level of Service E
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	85	151	768	11	2	12	1885	84	15	1	17	79
Future Volume (vph)	85	151	768	11	2	12	1885	84	15	1	17	79
Satd. Flow (prot)	0	1658	3316	1483	0	1658	3316	1483	0	1562	0	0
Flt Permitted		0.051				0.361				0.860		
Satd. Flow (perm)	0	89	3316	1233	0	597	3316	1303	0	1355	0	0
Satd. Flow (RTOR)				34				81		17		
Lane Group Flow (vph)	0	236	768	11	0	14	1885	84	0	33	0	0
Turn Type	pm+pt	pm+pt	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2				6			4		
Permitted Phases	2	2		2	6	6		6	4			8
Detector Phase	5	5	2	2	6	6	6	6	4	4		8
Switch Phase												
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0
Minimum Split (s)	10.6	10.6	23.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0		37.0
Total Split (s)	24.0	24.0	93.0	93.0	69.0	69.0	69.0	69.0	37.0	37.0		37.0
Total Split (%)	18.5%	18.5%	71.5%	71.5%	53.1%	53.1%	53.1%	53.1%	28.5%	28.5%		28.5%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0		3.0
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0		4.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0		
Total Lost Time (s)		5.6	5.6	5.6		5.6	5.6	5.6		7.0		
Lead/Lag	Lead	Lead			Lag	Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes	Yes				
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None
Act Effct Green (s)		95.1	95.1	95.1		73.5	73.5	73.5		22.3		
Actuated g/C Ratio		0.73	0.73	0.73		0.57	0.57	0.57		0.17		
v/c Ratio		0.92	0.32	0.01		0.04	1.01	0.11		0.13		
Control Delay		77.8	2.4	0.0		4.9	30.8	0.9		25.0		
Queue Delay		56.8	0.1	0.0		0.0	35.8	0.0		0.0		
Total Delay		134.7	2.5	0.0		4.9	66.5	0.9		25.0		
LOS		F	A	A		A	E	A		C		
Approach Delay			33.2				63.3			25.0		
Approach LOS			C				E			C		
Queue Length 50th (m)		31.7	6.7	0.0		0.7	~304.1	1.4		3.2		
Queue Length 95th (m)		#85.0	8.3	m0.0		m0.9	m#319.6	m1.7		12.0		
Internal Link Dist (m)			112.1				81.1			65.8		
Turn Bay Length (m)		65.0		15.0		30.0		15.0				
Base Capacity (vph)		286	2426	911		337	1875	771		325		
Starvation Cap Reductn		0	464	0		0	274	0		0		
Spillback Cap Reductn		79	704	0		0	29	0		3		
Storage Cap Reductn		0	0	0		0	0	0		0		
Reduced v/c Ratio		1.14	0.45	0.01		0.04	1.18	0.11		0.10		

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 3 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2	92
Future Volume (vph)	2	92
Satd. Flow (prot)	1665	1483
Flt Permitted	0.707	
Satd. Flow (perm)	1211	1415
Satd. Flow (RTOR)		80
Lane Group Flow (vph)	81	92
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	37.0	37.0
Total Split (s)	37.0	37.0
Total Split (%)	28.5%	28.5%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	4.0	4.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.0	7.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)	22.3	22.3
Actuated g/C Ratio	0.17	0.17
v/c Ratio	0.39	0.30
Control Delay	50.6	13.6
Queue Delay	0.0	0.6
Total Delay	50.6	14.2
LOS	D	B
Approach Delay	31.2	
Approach LOS	C	
Queue Length 50th (m)	17.2	2.4
Queue Length 95th (m)	32.2	16.4
Internal Link Dist (m)	63.4	
Turn Bay Length (m)		
Base Capacity (vph)	279	388
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	116
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.29	0.34

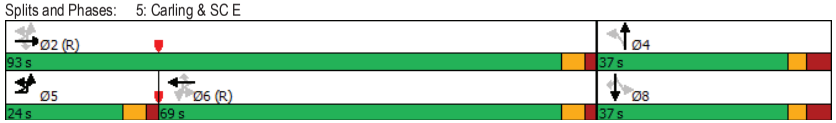
Intersection Summary

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 51.7	Intersection LOS: D
Intersection Capacity Utilization 122.7%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	733	139	460	1744	53	108	229	247	76	343	135
Future Volume (vph)	0	733	139	460	1744	53	108	229	247	76	343	135
Satd. Flow (prot)	0	3316	1483	1658	3316	1483	1658	1745	1483	1658	1745	1483
Flt Permitted				0.111			0.950			0.950		
Satd. Flow (perm)	0	3316	1405	194	3316	1354	1611	1745	1419	1621	1745	1399
Satd. Flow (RTOR)			129			84			247			123
Lane Group Flow (vph)	0	733	139	460	1744	53	108	229	247	76	343	135
Turn Type		NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Detector Phase		2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)		10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)		29.0	29.0	10.4	29.0	29.0	11.3	38.7	38.7	11.3	38.7	38.7
Total Split (s)		38.0	38.0	33.0	71.0	71.0	20.0	39.0	39.0	20.0	39.0	39.0
Total Split (%)		29.2%	29.2%	25.4%	54.6%	54.6%	15.4%	30.0%	30.0%	15.4%	30.0%	30.0%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)		2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	5.4	6.0	6.0	6.3	6.7	6.7	6.3	6.7	6.7
Lead/Lag		Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)		32.0	32.0	70.1	69.5	69.5	12.2	33.3	33.3	10.9	29.3	29.3
Actuated g/C Ratio		0.25	0.25	0.54	0.53	0.53	0.09	0.26	0.26	0.08	0.23	0.23
v/c Ratio		0.90	0.31	0.99	0.98	0.07	0.70	0.51	0.45	0.55	0.88	0.33
Control Delay		57.1	8.0	76.6	48.5	1.3	79.8	46.6	7.5	65.8	69.7	14.3
Queue Delay		23.6	0.0	0.0	40.7	0.0	0.0	0.0	0.0	0.0	16.8	0.1
Total Delay		80.8	8.0	76.6	89.2	1.3	79.8	46.6	7.5	65.8	86.6	14.4
LOS		F	A	E	F	A	E	D	A	E	F	B
Approach Delay		69.2			84.6			36.2			66.2	
Approach LOS		E			F			D			E	
Queue Length 50th (m)		97.9	9.6	~119.9	~255.2	0.0	26.9	49.9	0.0	18.9	70.1	6.5
Queue Length 95th (m)		#130.2	22.0	#186.3	#298.5	2.5	#48.2	77.1	21.0	34.7	#120.9	25.1
Internal Link Dist (m)		81.1			189.4			304.1			82.7	
Turn Bay Length (m)			15.0	70.0		15.0	50.0			30.0		50.0
Base Capacity (vph)		816	443	466	1772	763	174	453	551	174	433	440
Starvation Cap Reductn		109	0	0	0	0	0	0	0	0	82	0
Spillback Cap Reductn		0	0	0	519	0	0	0	0	0	0	18
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		1.04	0.31	0.99	1.39	0.07	0.62	0.51	0.45	0.44	0.98	0.32

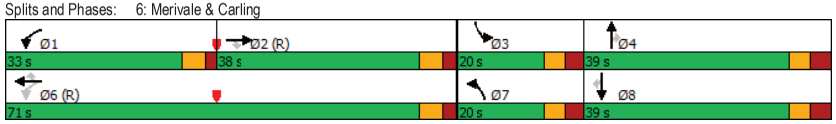
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 15 (12%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 72.4	Intersection LOS: E
Intersection Capacity Utilization 99.4%	ICU Level of Service F
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Merivale & Carling



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	68	19	27	56	27	12	510	9	43	804	50
Future Volume (vph)	22	68	19	27	56	27	12	510	9	43	804	50
Satd. Flow (prot)	0	1682	0	0	1662	0	0	3300	0	0	3275	0
Flt Permitted		0.917			0.897			0.933			0.906	
Satd. Flow (perm)	0	1558	0	0	1508	0	0	3082	0	0	2972	0
Satd. Flow (RTOR)		13			19			4			14	
Lane Group Flow (vph)	0	109	0	0	110	0	0	531	0	0	897	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.8	24.8		24.8	24.8		33.8	33.8		33.8	33.8	
Total Split (s)	25.0	25.0		25.0	25.0		55.0	55.0		55.0	55.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.8			5.8			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		12.3			12.3			60.5			60.5	
Actuated g/C Ratio		0.15			0.15			0.76			0.76	
v/c Ratio		0.44			0.45			0.23			0.40	
Control Delay		31.7			30.3			4.6			5.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		31.7			30.3			4.6			5.6	
LOS		C			C			A			A	
Approach Delay		31.7			30.3			4.6			5.6	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		13.8			13.1			11.2			22.1	
Queue Length 95th (m)		25.1			24.5			24.8			47.3	
Internal Link Dist (m)		146.9			128.0			113.1			304.1	
Turn Bay Length (m)												
Base Capacity (vph)		383			376			2330			2249	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.28			0.29			0.23			0.40	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 63 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 8.7	Intersection LOS: A
Intersection Capacity Utilization 73.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Merivale & Coldrey/Crerar

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations		↑↑	↱			↱↱		↱		
Traffic Vol, veh/h	0	943	0	0	0	2025	0	73	0	0
Future Vol, veh/h	0	943	0	0	0	2025	0	73	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	200	-	-	0	-	0	-	-
Veh in Median Storage, #	-	0	-	-	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	943	0	0	0	2025	0	73	0	0

Major/Minor	Major1			Minor1	
Conflicting Flow All	-	0	0	-	472
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	538
Stage 1	0	-	-	0	-
Stage 2	0	-	-	0	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	-	-	-	-	538
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	12.7
HCM LOS		B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	538	-	-
HCM Lane V/C Ratio	0.136	-	-
HCM Control Delay (s)	12.7	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.5	-	-

Appendix H

MMLOS Analysis

Multi-Modal Level of Service - Intersections Form

Consultant	**CGH Transportation Inc.**	**Project**	**2019-62**
Scenario	**Existing and Future Conditions**	**Date**	**2020-05-27**
Comments			

INTERSECTIONS		**Carling (westbound) and Kirkwood N**				**Merivale and SC N**			
	Crossing Side	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	6	4	4	3	3	3		0 - 2
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m		Median > 2.4 m
	Conflicting Left Turns	No left turn / Prohib.	Permissive	No left turn / Prohib.	Protected/ Permissive	Permissive	No left turn / Prohib.		Permissive
	Conflicting Right Turns	Permissive or yield control	No right turn	No right turn	Permissive or yield control	No right turn	Permissive or yield control		Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR prohibited		RTOR allowed
	Ped Signal Leading Interval?	No	No	No	No	No	No		No
	Right Turn Channel	No Channel	No Right Turn	No Right Turn	No Channel	No Right Turn	No Channel		No Channel
	Corner Radius	5-10m	No Right Turn	No Right Turn	5-10m	No Right Turn	5-10m		5-10m
	Crosswalk Type	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings		Std transverse markings
	PETSI Score	**29**	**71**	**76**	**74**	**85**	**82**		**86**
	Ped. Exposure to Traffic LoS	**F**	**C**	**B**	**C**	**B**	**B**	**-**	**B**
	Cycle Length								
	Effective Walk Time								
	Average Pedestrian Delay								
	Pedestrian Delay LoS	-	-	-	-	-	-	-	-
	Level of Service	**F**	**C**	**B**	**C**	**B**	**B**	**-**	**B**
		F				**B**			
	Approach From	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Pocket Bike Lane		Mixed Traffic		Pocket Bike Lane	Curb Bike Lane, Cycletrack or MUP		Mixed Traffic
	Right Turn Lane Configuration	≤ 50 m Introduced right turn lane	-	> 50 m		≤ 50 m Introduced right turn lane	Not Applicable		≤ 50 m
	Right Turning Speed	≤ 25 km/h		>25 km/h		≤ 25 km/h	Not Applicable		≤ 25 km/h
	Cyclist relative to RT motorists	**B**	**-**	**F**	**-**	**B**	**Not Applicable**	**-**	**D**
	Separated or Mixed Traffic	**Separated**	**-**	**Mixed Traffic**	**-**	**Separated**	**Separated**	**-**	**Mixed Traffic**
	Left Turn Approach		No lane crossed	≥ 2 lanes crossed			1 lane crossed		No lane crossed
	Operating Speed		> 50 to < 60 km/h	≥ 60 km/h			> 40 to ≤ 50 km/h		≤ 40 km/h
	Left Turning Cyclist	-	**C**	**F**	-	-	**C**	-	**B**
	Level of Service	**-**	**-**	**F**	**-**	**-**	**C**	**-**	**D**
		F				**D**			
Transit	Average Signal Delay	> 40 sec	> 40 sec	> 40 sec			≤ 10 sec		≤ 10 sec
	Level of Service	**F**	**F**	**F**	**-**	**-**	**B**	**-**	**B**
		F				**B**			
Truck	Effective Corner Radius	< 10 m		10 - 15 m					
	Number of Receiving Lanes on Departure from Intersection	≥ 2		≥ 2					
	Level of Service	**D**	**-**	**B**	**-**	**-**	**-**	**-**	**-**
		D				**-**			
Auto	Volume to Capacity Ratio	0.91 - 1.00				0.0 - 0.60			
	Level of Service	**E**				**A**			

Carling (eastbound) and Kirkwood S				Carling and SC W				Carling and SC E			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
4	5		4	0 - 2		6	6	3	0 - 2	7	7
No Median - 2.4 m	No Median - 2.4 m		No Median - 2.4 m	No Median - 2.4 m		No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
Permissive	No left turn / Prohib.		No left turn / Prohib.	No left turn / Prohib.		Permissive	No left turn / Prohib.	Protected/ Permissive	Permissive	Permissive	Permissive
No right turn	Permissive or yield control		No right turn	Protected/ Permissive		No right turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
RTOR prohibited	RTOR prohibited		RTOR allowed	RTOR allowed		RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
No	No		No	No		No	No	No	No	No	No
No Right Turn	Conv'tl without Receiving Lane		No Right Turn	No Channel		No Right Turn	No Channel	No Channel	No Channel	No Channel	No Channel
No Right Turn	5-10m		No Right Turn	0-3m		No Right Turn	3-5m	3-5m	3-5m	3-5m	3-5m
Zebra stripe hi-vis markings	Zebra stripe hi-vis markings		Zebra stripe hi-vis markings	Std transverse markings		Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings
74	**56**		**79**	**96**		**35**	**33**	**72**	**87**	**6**	**6**
C	**D**	**-**	**B**	**A**	**-**	**E**	**E**	**C**	**B**	**F**	**F**
-	-	-	-	-	-	-	-	-	-	-	-
C	**D**	**-**	**B**	**A**	**-**	**E**	**E**	**C**	**B**	**F**	**F**
D				**E**				**F**			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Mixed Traffic	Mixed Traffic		Pocket Bike Lane	Mixed Traffic		Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
	> 50 m		Bike lane shifts to the left of right turn	≤ 50 m		Not Applicable	Not Applicable	≤ 50 m	≤ 50 m	Not Applicable	Not Applicable
	≤ 25 km/h		>25 to 30 km/h	≤ 25 km/h		Not Applicable	Not Applicable	≤ 25 km/h	≤ 25 km/h	Not Applicable	Not Applicable
#N/A	**F**	**-**	**F**	**D**	**-**	**Not Applicable**	**Not Applicable**	**D**	**D**	**Not Applicable**	**Not Applicable**
Mixed Traffic	**Mixed Traffic**	**-**	**Separated**	**Mixed Traffic**	**-**	**Separated**	**Separated**	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**Separated**
One lane crossed			≥ 2 lanes crossed	No lane crossed		≥ 2 lanes crossed		No lane crossed	No lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed
> 40 to ≤ 50 km/h			≥ 60 km/h	> 40 to ≤ 50 km/h		≥ 60 km/h		≤ 40 km/h	≤ 40 km/h	≥ 60 km/h	≥ 60 km/h
D	**-**	**-**	**F**	**B**	**-**	**F**	**-**	**B**	**B**	**F**	**F**
#N/A	**-**	**-**	**F**	**D**	**-**	**F**	**-**	**D**	**D**	**F**	**F**
#N/A				**F**				**F**			
≤ 30 sec	≤ 40 sec		≤ 30 sec	≤ 30 sec		≤ 30 sec	≤ 20 sec	> 40 sec		≤ 20 sec	> 40 sec
D	**E**	**-**	**D**	**D**	**-**	**D**	**C**	**F**	**-**	**C**	**F**
E				**D**				**F**			
	< 10 m		10 - 15 m								
	≥ 2		≥ 2								
-	**D**	**-**	**B**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
D				**-**				**-**			
0.71 - 0.80				0.0 - 0.60				0.71 - 0.80			
C				**A**				**C**			

Carling and Merivale				Merivale and Coldrey/Crerar				Carling and SC W (Future)			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
4	3	7	6	4	4	0 - 2	0 - 2	0 - 2		6	6
No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m		No Median - 2.4 m	No Median - 2.4 m
No left turn / Prohib.	Protected/ Permissive	Protected	Protected	Permissive	Permissive	Permissive	Permissive	No left turn / Prohib.		Permissive	No left turn / Prohib.
Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Protected/ Permissive		No right turn	Permissive or yield control
RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed		RTOR allowed	RTOR prohibited
No	No	No	No	No	No	No	No	No		No	No
No Channel	No Channel	No Right Turn	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel		No Right Turn	No Channel
5-10m	5-10m	No Right Turn	5-10m	3-5m	3-5m	5-10m	3-5m	0-3m		No Right Turn	3-5m
Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings		Std transverse markings	Std transverse markings
62	**74**	**27**	**29**	**55**	**55**	**86**	**87**	**96**		**35**	**33**
C	**C**	**F**	**F**	**D**	**D**	**B**	**B**	**A**	**-**	**E**	**E**
-	-	-	-	-	-	-	-	-	-	-	-
C	**C**	**F**	**F**	**D**	**D**	**B**	**B**	**A**	**-**	**E**	**E**
F				**D**				**E**			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pocket Bike Lane	Pocket Bike Lane	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic		Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
≤ 50 m Introduced right turn lane	Bike lane shifts to the left of right turn	> 50 m	Not Applicable	> 50 m	> 50 m	> 50 m	> 50 m	≤ 50 m		Not Applicable	Not Applicable
≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	Not Applicable	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h		Not Applicable	Not Applicable
B	**D**	**F**	**Not Applicable**	**F**	**F**	**F**	**F**	**D**	**-**	**Not Applicable**	**Not Applicable**
Separated	**Separated**	**Mixed Traffic**	**Separated**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**-**	**Separated**	**Separated**
1 lane crossed	1 lane crossed	≥ 2 lanes crossed		One lane crossed	No lane crossed	No lane crossed	No lane crossed	No lane crossed		≥ 2 lanes crossed	
> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	≥ 60 km/h		> 50 to < 60 km/h	> 50 to < 60 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h		≥ 60 km/h	
C	**C**	**F**	**-**	**E**	**C**	**B**	**B**	**B**	**-**	**F**	**-**
C	**D**	**F**	**-**	**F**	**F**	**F**	**F**	**D**	**-**	**F**	**-**
F				**F**				**F**			
> 40 sec	> 40 sec	≤ 30 sec	> 40 sec	≤ 40 sec	≤ 40 sec			≤ 30 sec		≤ 10 sec	≤ 10 sec
F	**F**	**D**	**F**	**E**	**E**	**-**	**-**	**D**	**-**	**B**	**B**
F				**E**				**D**			
< 10 m	< 10 m	< 10 m	< 10 m	< 10 m	< 10 m	< 10 m	< 10 m				
≥ 2	≥ 2	1	1	1	1	≥ 2	≥ 2				
D	**D**	**F**	**F**	**F**	**F**	**D**	**D**	**-**	**-**	**-**	**-**
F				**F**				**-**			
0.71 - 0.80				0.0 - 0.60				0.0 - 0.60			
C				**A**				**A**			

Carling and SC E (Future)				Carling and Merivale (Future)				Carling (westbound) and Kirkwood N (Future)			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
3	0 - 2	7	7	4	3	7	6	6	4	4	3
No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
Protected/ Permissive	Permissive	Permissive	Permissive	No left turn / Prohib.	Protected/ Permissive	Protected	Protected	No left turn / Prohib.	Permissive	No left turn / Prohib.	Protected/ Permissive
Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	Permissive or yield control	No right turn	No right turn	Permissive or yield control
RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR prohibited
No	No	No	No	No	No	No	No	No	No	No	No
No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Right Turn	No Channel	No Channel	No Right Turn	No Right Turn	No Channel
3-5m	3-5m	3-5m	3-5m	5-10m	5-10m	No Right Turn	5-10m	5-10m	No Right Turn	No Right Turn	5-10m
Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings
72	**87**	**6**	**6**	**62**	**74**	**27**	**29**	**29**	**71**	**76**	**74**
C	**B**	**F**	**F**	**C**	**C**	**F**	**F**	**F**	**C**	**B**	**C**
-	-	-	-	-	-	-	-	-	-	-	-
C	**B**	**F**	**F**	**C**	**C**	**F**	**F**	**F**	**C**	**B**	**C**
F				**F**				**F**			
NORTH	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**
Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Pocket Bike Lane	Pocket Bike Lane	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Pocket Bike Lane		Curb Bike Lane, Cycletrack or MUP	
≤ 50 m	≤ 50 m	Not Applicable	Not Applicable	≤ 50 m Introduced right turn lane	Bike lane shifts to the left of right turn	> 50 m	Not Applicable	≤ 50 m Introduced right turn lane		Not Applicable	
≤ 25 km/h	≤ 25 km/h	Not Applicable	Not Applicable	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	Not Applicable	≤ 25 km/h		Not Applicable	
D	**D**	**Not Applicable**	**Not Applicable**	**B**	**D**	**F**	**Not Applicable**	**B**	**-**	**Not Applicable**	**-**
Mixed Traffic	**Mixed Traffic**	**Separated**	**Separated**	**Separated**	**Separated**	**Mixed Traffic**	**Separated**	**Separated**	**Mixed Traffic**	**Separated**	**-**
No lane crossed	No lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	1 lane crossed	1 lane crossed	≥ 2 lanes crossed			One lane crossed	2-stage, LT box	
≤ 40 km/h	≤ 40 km/h	≥ 60 km/h	≥ 60 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	≥ 60 km/h			> 50 to < 60 km/h	≥ 60 km/h	
B	**B**	**F**	**F**	**C**	**C**	**F**	**-**	**-**	**E**	**A**	**-**
D	**D**	**F**	**F**	**C**	**D**	**F**	**-**	**-**	**E**	**A**	**-**
F				**F**				**E**			
> 40 sec		≤ 10 sec	≤ 10 sec	> 40 sec	> 40 sec	≤ 10 sec	≤ 10 sec	> 40 sec	> 40 sec	> 40 sec	
F	**-**	**B**	**B**	**F**	**F**	**B**	**B**	**F**	**F**	**F**	**-**
F				**F**				**F**			
				< 10 m	< 10 m	< 10 m	< 10 m	< 10 m		10 - 15 m	
				≥ 2	≥ 2	1	1	≥ 2		≥ 2	
-	**-**	**-**	**-**	**D**	**D**	**F**	**F**	**D**	**-**	**B**	**-**
-				**F**				**D**			
0.71 - 0.80				0.71 - 0.80				0.91 - 1.00			
C				**C**				**E**			

Multi-Modal Level of Service - Segments Form

Consultant	**CGH Transportation Inc.**	**Project**	**2019-62**
Scenario	**Existing and Future Conditions**	**Date**	**2020-05-27**
Comments			

SEGMENTS		**Street A**	Carling Present	Archibald Present	Archibald Future	Carling Future
Pedestrian	Sidewalk Width Boulevard Width	**F**	1.8 m 0.5 - 2 m	no sidewalk n/a	1.8 m < 0.5 m	1.8 m < 0.5 m
	Avg Daily Curb Lane Traffic Volume		> 3000	≤ 3000	≤ 3000	≤ 3000
	Operating Speed On-Street Parking		> 50 to 60 km/h no	> 30 to 50 km/h no	> 30 to 50 km/h no	> 50 to 60 km/h no
	Exposure to Traffic PLoS		**E**	**F**	**B**	**C**
	Effective Sidewalk Width		2.0 m	1.2 m	1.5 m	2.0 m
	Pedestrian Volume		250 ped/hr	250 ped/hr	250 ped/hr	250 ped/hr
	Crowding PLoS		**B**	**B**	**B**	**B**
	Level of Service		**E**	**F**	**B**	**C**
Bicycle	Type of Cycling Facility	**D**	Curbside Bike Lane	Mixed Traffic	Mixed Traffic	Curbside Bike Lane
	Number of Travel Lanes		≥ 3 each direction	≤ 2 (no centreline)	≤ 2 (no centreline)	≥ 3 each direction
	Operating Speed		>50 to 70 km/h	>40 to <50 km/h	>40 to <50 km/h	>50 to 70 km/h
	# of Lanes & Operating Speed LoS		**D**	**B**	**B**	**D**
	Bike Lane (+ Parking Lane) Width		≥ 1.8 m			≥ 1.8 m
	Bike Lane Width LoS		**A**	-	-	**A**
	Bike Lane Blockages		Rare			Rare
	Blockage LoS		**A**	-	-	**A**
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge	< 1.8 m refuge	< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes	≤ 3 lanes	≤ 3 lanes
	Sidestreet Operating Speed		>40 to 50 km/h	>40 to 50 km/h	>40 to 50 km/h	>40 to 50 km/h
	Unsignalized Crossing - Lowest LoS		**B**	**A**	**A**	**A**
	Level of Service		**D**	**B**	**B**	**D**
Transit	Facility Type	**D**	Mixed Traffic			Bus lane
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8			Cf ≤ 60
	Level of Service		**D**	**-**	**-**	**B**
Truck	Truck Lane Width	**C**	≤ 3.3 m	> 3.7 m	> 3.7 m	≤ 3.3 m
	Travel Lanes per Direction		> 1	1	1	> 1
	Level of Service		**C**	**B**	**B**	**C**
Auto	**Level of Service**	**Not Applicable**				

Appendix I

Synchro Worksheets – 2023 Future Total Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	103	1531	213	286	266	0	0	398	355
Future Volume (vph)	0	0	0	103	1531	213	286	266	0	0	398	355
Satd. Flow (prot)	0	0	0	3216	4644	0	1658	1745	0	0	3316	1483
Flt Permitted				0.950			0.331					
Satd. Flow (perm)	0	0	0	3199	4644	0	568	1745	0	0	3316	1410
Satd. Flow (RTOR)					26							86
Lane Group Flow (vph)	0	0	0	103	1744	0	286	266	0	0	398	355
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Detector Phase				2	2		7	4			8	8
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				40.3	40.3		14.5	32.0			32.0	32.0
Total Split (s)				58.0	58.0		24.0	62.0			38.0	38.0
Total Split (%)				48.3%	48.3%		20.0%	51.7%			31.7%	31.7%
Yellow Time (s)				3.7	3.7		3.3	3.3			3.3	3.3
All-Red Time (s)				2.6	2.6		2.9	2.7			2.7	2.7
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				6.3	6.3		6.2	6.0			6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				C-Max	C-Max		None	Min			Min	Min
Act Effct Green (s)				55.8	55.8		51.7	51.9			28.0	28.0
Actuated g/C Ratio				0.46	0.46		0.43	0.43			0.23	0.23
v/c Ratio				0.07	0.80		0.71	0.35			0.52	0.90
Control Delay				19.3	31.4		25.2	15.2			41.9	59.5
Queue Delay				0.0	0.0		0.0	0.0			0.0	0.0
Total Delay				19.3	31.4		25.2	15.2			41.9	59.5
LOS				B	C		C	B			D	E
Approach Delay					30.7			20.4			50.2	
Approach LOS					C			C			D	
Queue Length 50th (m)				7.1	130.6		56.0	51.1			41.6	61.4
Queue Length 95th (m)				12.5	153.7		m81.0	m74.8			56.2	#108.5
Internal Link Dist (m)		193.0			341.6			139.1			131.1	
Turn Bay Length (m)				38.0								30.0
Base Capacity (vph)				1488	2174		406	814			884	439
Starvation Cap Reductn				0	0		0	0			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.07	0.80		0.70	0.33			0.45	0.81

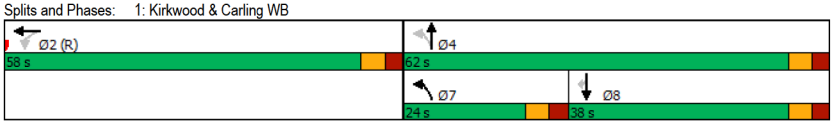
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 33.6	Intersection LOS: C
Intersection Capacity Utilization 94.3%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Kirkwood & Carling WB



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	44	14	63	212	418	62
Future Volume (vph)	44	14	63	212	418	62
Satd. Flow (prot)	1658	1483	1658	1745	1745	1483
Flt Permitted	0.950		0.518			
Satd. Flow (perm)	1641	1451	903	1745	1745	1450
Satd. Flow (RTOR)		14				62
Lane Group Flow (vph)	44	14	63	212	418	62
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	15.9	15.9	35.9	35.9
Total Split (s)	24.0	24.0	36.0	36.0	36.0	36.0
Total Split (%)	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.6	11.6	45.5	45.5	45.5	45.5
Actuated g/C Ratio	0.19	0.19	0.76	0.76	0.76	0.76
v/c Ratio	0.14	0.05	0.09	0.16	0.32	0.06
Control Delay	19.8	9.6	1.4	1.4	6.3	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	9.6	1.4	1.4	6.3	2.3
LOS	B	A	A	A	A	A
Approach Delay	17.4			1.4	5.8	
Approach LOS	B			A	A	
Queue Length 50th (m)	4.2	0.0	0.3	1.0	18.1	0.0
Queue Length 95th (m)	9.5	3.3	1.5	3.8	46.6	4.4
Internal Link Dist (m)	51.1			82.7	69.7	
Turn Bay Length (m)			35.0			50.0
Base Capacity (vph)	503	454	685	1323	1323	1114
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.09	0.16	0.32	0.06

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 8 (13%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.32

Intersection Signal Delay: 5.1	Intersection LOS: A
Intersection Capacity Utilization 56.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Merivale & SC N

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	1824	429	0	0	0	0	440	434	329	182	0
Future Volume (vph)	128	1824	429	0	0	0	0	440	434	329	182	0
Satd. Flow (prot)	1426	4502	1483	0	0	0	0	3316	1483	1658	1745	0
Flt Permitted	0.950									0.342		
Satd. Flow (perm)	1426	4502	1396	0	0	0	0	3316	1483	597	1745	0
Satd. Flow (RTOR)			429									
Lane Group Flow (vph)	115	1837	429	0	0	0	0	440	434	329	182	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		2						4		3	8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					10.0	10.0	10.0	10.0	
Minimum Split (s)	29.2	29.2	29.2					26.1	26.1	23.1	26.1	
Total Split (s)	58.0	58.0	58.0					38.0	38.0	24.0	62.0	
Total Split (%)	48.3%	48.3%	48.3%					31.7%	31.7%	20.0%	51.7%	
Yellow Time (s)	3.7	3.7	3.7					3.3	3.3	3.3	3.3	
All-Red Time (s)	2.5	2.5	2.5					2.8	2.8	1.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2					6.1	6.1	5.1	6.1	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	C-Max					Min	Min	Min	Min	
Act Effct Green (s)	51.8	51.8	51.8					32.9	32.9	56.9	55.9	
Actuated g/C Ratio	0.43	0.43	0.43					0.27	0.27	0.47	0.47	
v/c Ratio	0.19	0.95	0.51					0.48	1.07	0.75	0.22	
Control Delay	22.1	44.2	4.3					38.9	106.1	42.3	25.6	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	22.1	44.2	4.3					38.9	106.1	42.3	25.6	
LOS	C	D	A					D	F	D	C	
Approach Delay		35.9						72.3			36.3	
Approach LOS		D						E			D	
Queue Length 50th (m)	19.0	158.0	0.0					46.2	~116.1	77.2	36.9	
Queue Length 95th (m)	33.7	#195.5	18.3					62.3	#177.8	105.6	63.4	
Internal Link Dist (m)		150.0			320.1			71.9			139.1	
Turn Bay Length (m)	50.0		200.0						80.0			
Base Capacity (vph)	615	1943	846					909	406	450	812	
Starvation Cap Reductn	0	0	0					0	0	0	0	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.19	0.95	0.51					0.48	1.07	0.73	0.22	

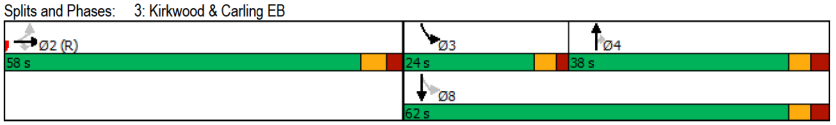
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15 (13%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 44.4	Intersection LOS: D
Intersection Capacity Utilization 94.3%	ICU Level of Service F
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Kirkwood & Carling EB



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1350	848	14	12	23
Future Volume (vph)	0	1350	848	14	12	23
Satd. Flow (prot)	0	3316	3316	1483	1537	0
Flt Permitted					0.983	
Satd. Flow (perm)	0	3316	3316	1402	1519	0
Satd. Flow (RTOR)				8	23	
Lane Group Flow (vph)	0	1350	848	14	35	0
Turn Type		NA	NA	Perm	Perm	
Protected Phases		2	6			
Permitted Phases				6	4	
Detector Phase		2	6	6	4	
Switch Phase						
Minimum Initial (s)		10.0	10.0	10.0	10.0	
Minimum Split (s)		15.3	42.3	42.3	38.1	
Total Split (s)		81.0	81.0	81.0	39.0	
Total Split (%)		67.5%	67.5%	67.5%	32.5%	
Yellow Time (s)		3.7	3.7	3.7	3.0	
All-Red Time (s)		1.6	1.6	1.6	3.1	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.3	5.3	5.3	6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max	C-Max	None	
Act Effct Green (s)		89.7	89.7	89.7	23.2	
Actuated g/C Ratio		0.75	0.75	0.75	0.19	
v/c Ratio		0.54	0.34	0.01	0.11	
Control Delay		6.3	3.7	1.7	18.0	
Queue Delay		0.0	0.1	0.0	0.0	
Total Delay		6.3	3.8	1.7	18.0	
LOS		A	A	A	B	
Approach Delay		6.3	3.7		18.0	
Approach LOS		A	A		B	
Queue Length 50th (m)		47.1	27.2	0.1	2.1	
Queue Length 95th (m)		m63.0	6.1	m0.2	10.1	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)				15.0		
Base Capacity (vph)		2478	2478	1049	433	
Starvation Cap Reductn		0	510	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.54	0.43	0.01	0.08	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 38 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 5.5	Intersection LOS: A
Intersection Capacity Utilization 63.3%	ICU Level of Service B
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	136	128	1134	20	5	667	43	12	2	12	27	0
Future Volume (vph)	136	128	1134	20	5	667	43	12	2	12	27	0
Satd. Flow (prot)	0	1658	3316	1483	1658	3316	1483	0	1584	0	0	1658
Flt Permitted		0.397			0.233				0.844			0.740
Satd. Flow (perm)	0	673	3316	1351	403	3316	1330	0	1363	0	0	1281
Satd. Flow (RTOR)				36			36		12			
Lane Group Flow (vph)	0	264	1134	20	5	667	43	0	26	0	0	27
Turn Type		Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases			2			6			4			8
Permitted Phases		2		2	6		6	4			8	
Detector Phase		2	2	2	6	6	6	4	4		8	8
Switch Phase												
Minimum Initial (s)		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)		23.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0		37.0	37.0
Total Split (s)		83.0	83.0	83.0	83.0	83.0	83.0	37.0	37.0		37.0	37.0
Total Split (%)		69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%		30.8%	30.8%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0		3.0	3.0
All-Red Time (s)		1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0		4.0	4.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Lost Time (s)		5.6	5.6	5.6	5.6	5.6	5.6		7.0			7.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None
Act Effct Green (s)		97.9	97.9	97.9	97.9	97.9	97.9		14.0			14.0
Actuated g/C Ratio		0.82	0.82	0.82	0.82	0.82	0.82		0.12			0.12
v/c Ratio		0.48	0.42	0.02	0.02	0.25	0.04		0.15			0.18
Control Delay		5.6	1.7	0.1	5.2	4.1	2.4		30.2			47.3
Queue Delay		0.0	0.1	0.0	0.0	0.1	0.0		0.0			0.0
Total Delay		5.6	1.8	0.1	5.2	4.2	2.4		30.2			47.3
LOS		A	A	A	A	A	A		C			D
Approach Delay			2.5			4.1			30.2			27.8
Approach LOS			A			A			C			C
Queue Length 50th (m)		5.6	12.6	0.0	0.2	16.5	0.3		3.1			6.1
Queue Length 95th (m)		10.4	13.9	m0.0	m0.9	26.7	m1.6		9.8			12.6
Internal Link Dist (m)			112.1			81.1			65.8			63.4
Turn Bay Length (m)		65.0		15.0	30.0		15.0					
Base Capacity (vph)		549	2705	1109	329	2705	1092		349			320
Starvation Cap Reductn		0	431	0	0	990	0		0			0
Spillback Cap Reductn		0	241	0	0	0	0		0			0
Storage Cap Reductn		0	0	0	0	0	0		0			0
Reduced v/c Ratio		0.48	0.50	0.02	0.02	0.39	0.04		0.07			0.08

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	39
Future Volume (vph)	39
Satd. Flow (prot)	1483
Flt Permitted	
Satd. Flow (perm)	1452
Satd. Flow (RTOR)	39
Lane Group Flow (vph)	39
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Detector Phase	8
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	37.0
Total Split (s)	37.0
Total Split (%)	30.8%
Yellow Time (s)	3.0
All-Red Time (s)	4.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	14.0
Actuated g/C Ratio	0.12
v/c Ratio	0.19
Control Delay	14.3
Queue Delay	0.0
Total Delay	14.3
LOS	B
Approach Delay	
Approach LOS	
Queue Length 50th (m)	0.0
Queue Length 95th (m)	8.6
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	392
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.10

Intersection Summary

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 4.1	Intersection LOS: A
Intersection Capacity Utilization 79.9%	ICU Level of Service D
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1063	111	157	476	40	109	237	419	37	264	132
Future Volume (vph)	0	1063	111	157	476	40	109	237	419	37	264	132
Satd. Flow (prot)	0	3316	1483	1658	3316	1483	1658	1745	1483	1658	1745	1483
Flt Permitted				0.086			0.950			0.950		
Satd. Flow (perm)	0	3316	1410	150	3316	1393	1639	1745	1437	1639	1745	1437
Satd. Flow (RTOR)			140			91			296			134
Lane Group Flow (vph)	0	1063	111	157	476	40	109	237	419	37	264	132
Turn Type		NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Detector Phase		2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)		10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)		29.0	29.0	10.4	29.0	29.0	11.3	38.7	38.7	11.3	38.7	38.7
Total Split (s)		48.0	48.0	12.0	60.0	60.0	21.0	39.0	39.0	21.0	39.0	39.0
Total Split (%)		40.0%	40.0%	10.0%	50.0%	50.0%	17.5%	32.5%	32.5%	17.5%	32.5%	32.5%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)		2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	5.4	6.0	6.0	6.3	6.7	6.7	6.3	6.7	6.7
Lead/Lag		Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)		46.5	46.5	64.6	64.0	64.0	12.3	33.8	33.8	8.2	24.7	24.7
Actuated g/C Ratio		0.39	0.39	0.54	0.53	0.53	0.10	0.28	0.28	0.07	0.21	0.21
v/c Ratio		0.83	0.18	0.68	0.27	0.05	0.64	0.48	0.68	0.33	0.74	0.33
Control Delay		28.7	1.6	38.1	17.3	0.1	68.6	39.4	17.0	57.4	50.9	10.0
Queue Delay		2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Total Delay		30.7	1.6	38.1	17.3	0.1	68.6	39.4	17.0	57.4	51.3	10.0
LOS		C	A	D	B	A	E	D	B	E	D	B
Approach Delay		28.0			21.2			31.3			39.3	
Approach LOS		C			C			C			D	
Queue Length 50th (m)		88.8	0.4	18.8	30.6	0.0	24.8	49.5	26.1	8.6	46.8	0.9
Queue Length 95th (m)		#160.3	3.1	#66.6	49.2	0.0	43.1	69.4	59.8	0.0	57.8	17.4
Internal Link Dist (m)		81.1			189.4			304.1			82.7	
Turn Bay Length (m)			15.0	70.0		15.0	50.0			30.0		50.0
Base Capacity (vph)		1284	632	232	1768	785	203	509	629	203	469	484
Starvation Cap Reductn		111	0	0	0	0	0	0	0	0	36	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.91	0.18	0.68	0.27	0.05	0.54	0.47	0.67	0.18	0.61	0.27

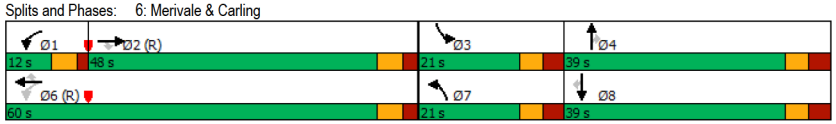
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 52 (43%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 28.9	Intersection LOS: C
Intersection Capacity Utilization 86.3%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Merivale & Carling

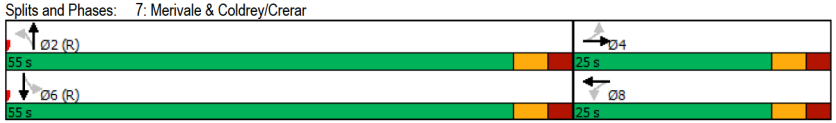


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	17	29	10	21	46	29	673	11	23	495	37
Future Volume (vph)	15	17	29	10	21	46	29	673	11	23	495	37
Satd. Flow (prot)	0	1599	0	0	1580	0	0	3301	0	0	3267	0
Flt Permitted		0.903			0.950			0.919			0.914	
Satd. Flow (perm)	0	1461	0	0	1509	0	0	3039	0	0	2992	0
Satd. Flow (RTOR)		29			46			4			17	
Lane Group Flow (vph)	0	61	0	0	77	0	0	713	0	0	555	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.8	24.8		24.8	24.8		33.8	33.8		33.8	33.8	
Total Split (s)	25.0	25.0		25.0	25.0		55.0	55.0		55.0	55.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.8			5.8			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		11.8			11.8			60.9			60.9	
Actuated g/C Ratio		0.15			0.15			0.76			0.76	
v/c Ratio		0.25			0.30			0.31			0.24	
Control Delay		20.3			17.4			4.9			4.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.3			17.4			4.9			4.4	
LOS		C			B			A			A	
Approach Delay		20.3			17.4			4.9			4.4	
Approach LOS		C			B			A			A	
Queue Length 50th (m)		4.4			4.3			16.0			11.4	
Queue Length 95th (m)		12.9			13.9			35.2			25.8	
Internal Link Dist (m)		146.9			128.0			113.1			304.1	
Turn Bay Length (m)												
Base Capacity (vph)		372			397			2315			2282	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.16			0.19			0.31			0.24	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 46 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.31	
Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 61.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Merivale & Coldrey/Crerar



Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations		↑↑	↱			↱↱		↱		
Traffic Vol, veh/h	0	1141	14	0	783	0	0	142	0	0
Future Vol, veh/h	0	1141	14	0	783	0	0	142	0	0
Conflicting Peds, #/hr	0	0	21	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	200	-	-	0	-	0	-	-
Veh in Median Storage, #	-	0	-	-	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1141	14	0	783	0	0	142	0	0

Major/Minor	Major1			Minor1	
Conflicting Flow All	-	0	0	-	592
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	449
Stage 1	0	-	-	0	-
Stage 2	0	-	-	0	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	-	-	-	-	442
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	17
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	442	-	-
HCM Lane V/C Ratio	0.321	-	-
HCM Control Delay (s)	17	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	1.4	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	40	102	0	14	0
Future Vol, veh/h	0	40	102	0	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	40	102	0	14	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	130	102	0	0	102	0
Stage 1	102	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	864	953	-	-	1490	-
Stage 1	922	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	856	953	-	-	1490	-
Mov Cap-2 Maneuver	856	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	7.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 953	1490	-
HCM Lane V/C Ratio	-	- 0.042	0.009	-
HCM Control Delay (s)	-	- 8.9	7.4	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0.1	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	186	2335	282	204	510	0	0	476	389
Future Volume (vph)	0	0	0	186	2335	282	204	510	0	0	476	389
Satd. Flow (prot)	0	0	0	3216	4653	0	1658	1745	0	0	3316	1483
Flt Permitted				0.950			0.263					
Satd. Flow (perm)	0	0	0	3182	4653	0	453	1745	0	0	3316	1412
Satd. Flow (RTOR)					25							86
Lane Group Flow (vph)	0	0	0	186	2617	0	204	510	0	0	476	389
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Detector Phase				2	2		7	4			8	8
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				40.3	40.3		14.5	32.0			32.0	32.0
Total Split (s)				67.0	67.0		20.0	53.0			33.0	33.0
Total Split (%)				55.8%	55.8%		16.7%	44.2%			27.5%	27.5%
Yellow Time (s)				3.7	3.7		3.3	3.3			3.3	3.3
All-Red Time (s)				2.6	2.6		2.9	2.7			2.7	2.7
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				6.3	6.3		6.2	6.0			6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				C-Max	C-Max		None	Min			Min	Min
Act Effct Green (s)				60.7	60.7		46.8	47.0			27.4	27.4
Actuated g/C Ratio				0.51	0.51		0.39	0.39			0.23	0.23
v/c Ratio				0.12	1.11		0.66	0.75			0.63	1.00
Control Delay				15.8	84.0		32.0	37.3			46.2	82.9
Queue Delay				0.0	0.0		0.0	3.8			0.0	0.0
Total Delay				15.8	84.0		32.0	41.2			46.2	82.9
LOS				B	F		C	D			D	F
Approach Delay					79.5			38.5			62.7	
Approach LOS					E			D			E	
Queue Length 50th (m)				11.4	~256.9		40.2	120.4			53.7	~77.0
Queue Length 95th (m)				17.6	#284.9		57.5	159.5			71.6	#139.9
Internal Link Dist (m)		193.0			341.6			139.1			131.1	
Turn Bay Length (m)				38.0								30.0
Base Capacity (vph)				1609	2365		315	683			756	388
Starvation Cap Reductn				0	0		0	103			0	0
Spillback Cap Reductn				17	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.12	1.11		0.65	0.88			0.63	1.00

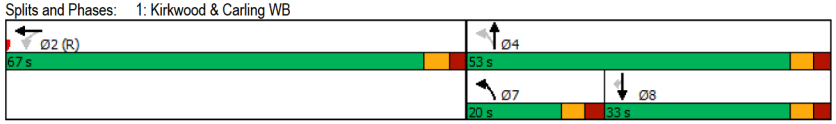
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 39 (33%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 69.5	Intersection LOS: E
Intersection Capacity Utilization 109.6%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Kirkwood & Carling WB



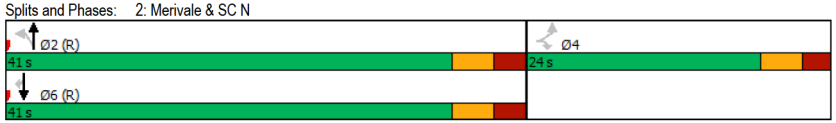
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	60	64	203	466	90
Future Volume (vph)	82	60	64	203	466	90
Satd. Flow (prot)	1658	1483	1658	1745	1745	1483
Flt Permitted	0.950		0.479			
Satd. Flow (perm)	1595	1451	835	1745	1745	1448
Satd. Flow (RTOR)		60				90
Lane Group Flow (vph)	82	60	64	203	466	90
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	15.9	15.9	35.9	35.9
Total Split (s)	24.0	24.0	41.0	41.0	41.0	41.0
Total Split (%)	36.9%	36.9%	63.1%	63.1%	63.1%	63.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.6	11.6	46.2	46.2	46.2	46.2
Actuated g/C Ratio	0.18	0.18	0.71	0.71	0.71	0.71
v/c Ratio	0.29	0.19	0.11	0.16	0.38	0.09
Control Delay	24.9	7.9	4.4	5.0	6.9	1.9
Queue Delay	0.0	0.1	0.0	0.0	0.1	0.0
Total Delay	24.9	8.0	4.4	5.0	7.0	1.9
LOS	C	A	A	A	A	A
Approach Delay	17.8			4.8	6.2	
Approach LOS	B			A	A	
Queue Length 50th (m)	8.9	0.0	0.4	1.7	20.9	0.0
Queue Length 95th (m)	16.9	7.3	19.6	64.5	52.4	5.0
Internal Link Dist (m)	51.1			82.7	69.7	
Turn Bay Length (m)			35.0			50.0
Base Capacity (vph)	451	453	593	1240	1240	1055
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	71	0	0	102	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.16	0.11	0.16	0.41	0.09

Intersection Summary
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 27 (42%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Merivale & SC N



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	405	1268	422	0	0	0	0	313	340	421	249	0
Future Volume (vph)	405	1268	422	0	0	0	0	313	340	421	249	0
Satd. Flow (prot)	1426	4493	1483	0	0	0	0	3316	1483	1658	1745	0
Flt Permitted	0.950	0.998								0.394		
Satd. Flow (perm)	1426	4493	1393	0	0	0	0	3316	1461	687	1745	0
Satd. Flow (RTOR)			420									
Lane Group Flow (vph)	364	1309	422	0	0	0	0	313	340	421	249	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		2						4		3	8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					10.0	10.0	10.0	10.0	
Minimum Split (s)	29.2	29.2	29.2					26.1	26.1	23.1	26.1	
Total Split (s)	61.0	61.0	61.0					29.0	29.0	30.0	59.0	
Total Split (%)	50.8%	50.8%	50.8%					24.2%	24.2%	25.0%	49.2%	
Yellow Time (s)	3.7	3.7	3.7					3.3	3.3	3.3	3.3	
All-Red Time (s)	2.5	2.5	2.5					2.8	2.8	1.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2					6.1	6.1	5.1	6.1	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	C-Max					Min	Min	Min	Min	
Act Effct Green (s)	54.8	54.8	54.8					23.9	23.9	53.9	52.9	
Actuated g/C Ratio	0.46	0.46	0.46					0.20	0.20	0.45	0.44	
v/c Ratio	0.56	0.64	0.49					0.47	1.17	0.84	0.32	
Control Delay	27.9	26.8	4.0					45.7	150.7	27.1	8.0	
Queue Delay	0.3	0.1	0.0					0.0	0.0	2.3	0.0	
Total Delay	28.2	26.9	4.0					45.7	150.7	29.4	8.0	
LOS	C	C	A					D	F	C	A	
Approach Delay		22.5						100.4			21.5	
Approach LOS		C						F			C	
Queue Length 50th (m)	71.0	89.6	0.3					35.0	~98.3	82.5	5.8	
Queue Length 95th (m)	105.8	106.0	17.3					49.3	#154.6	#119.1	14.7	
Internal Link Dist (m)		150.0			323.9			71.9			139.1	
Turn Bay Length (m)	50.0		200.0						80.0			
Base Capacity (vph)	651	2051	864					659	290	510	769	
Starvation Cap Reductn	0	0	0					0	0	29	0	
Spillback Cap Reductn	45	95	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.60	0.67	0.49					0.47	1.17	0.88	0.32	

Intersection Summary

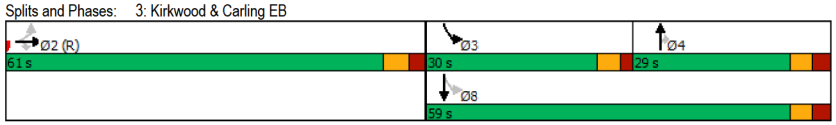
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 37.2	Intersection LOS: D
Intersection Capacity Utilization 109.6%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Kirkwood & Carling EB



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1029	1999	5	35	38
Future Volume (vph)	0	1029	1999	5	35	38
Satd. Flow (prot)	0	3316	3316	1483	1566	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	3316	3316	1382	1535	0
Satd. Flow (RTOR)				1	15	
Lane Group Flow (vph)	0	1029	1999	5	73	0
Turn Type		NA	NA	Perm	Perm	
Protected Phases		2	6			
Permitted Phases				6	4	
Detector Phase		2	6	6	4	
Switch Phase						
Minimum Initial (s)		10.0	10.0	10.0	10.0	
Minimum Split (s)		15.3	59.3	59.3	38.1	
Total Split (s)		91.0	91.0	91.0	39.0	
Total Split (%)		70.0%	70.0%	70.0%	30.0%	
Yellow Time (s)		3.7	3.7	3.7	3.0	
All-Red Time (s)		1.6	1.6	1.6	3.1	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.3	5.3	5.3	6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max	C-Max	None	
Act Effct Green (s)		99.7	99.7	99.7	23.2	
Actuated g/C Ratio		0.77	0.77	0.77	0.18	
v/c Ratio		0.40	0.79	0.00	0.26	
Control Delay		8.2	15.1	6.6	35.0	
Queue Delay		0.0	0.3	0.0	0.0	
Total Delay		8.2	15.4	6.6	35.0	
LOS		A	B	A	C	
Approach Delay		8.2	15.4		35.0	
Approach LOS		A	B		C	
Queue Length 50th (m)		62.0	90.6	0.2	11.7	
Queue Length 95th (m)		75.7	m102.9	m0.2	24.6	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)				15.0		
Base Capacity (vph)		2542	2542	1059	399	
Starvation Cap Reductn		0	116	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.40	0.82	0.00	0.18	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 107 (82%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 13.5	Intersection LOS: B
Intersection Capacity Utilization 81.4%	ICU Level of Service D
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	102	151	746	11	12	1797	84	15	1	17	79	2
Future Volume (vph)	102	151	746	11	12	1797	84	15	1	17	79	2
Satd. Flow (prot)	0	1658	3316	1483	1658	3316	1483	0	1562	0	0	1665
Flt Permitted		0.051			0.368				0.860			0.707
Satd. Flow (perm)	0	89	3316	1233	608	3316	1303	0	1355	0	0	1211
Satd. Flow (RTOR)				34			81		17			
Lane Group Flow (vph)	0	253	746	11	12	1797	84	0	33	0	0	81
Turn Type		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases		5	2			6			4			8
Permitted Phases		2		2	6		6	4			8	
Detector Phase		5	2	2	6	6	6	4	4		8	8
Switch Phase												
Minimum Initial (s)		5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)		10.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0		37.0	37.0
Total Split (s)		24.0	93.0	93.0	69.0	69.0	69.0	37.0	37.0		37.0	37.0
Total Split (%)		18.5%	71.5%	71.5%	53.1%	53.1%	53.1%	28.5%	28.5%		28.5%	28.5%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0		3.0	3.0
All-Red Time (s)		1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0		4.0	4.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Lost Time (s)		5.6	5.6	5.6	5.6	5.6	5.6		7.0			7.0
Lead/Lag		Lead			Lag	Lag	Lag					
Lead-Lag Optimize?		Yes			Yes	Yes	Yes					
Recall Mode		None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None
Act Effct Green (s)		95.1	95.1	95.1	72.6	72.6	72.6		22.3			22.3
Actuated g/C Ratio		0.73	0.73	0.73	0.56	0.56	0.56		0.17			0.17
v/c Ratio		0.94	0.31	0.01	0.04	0.97	0.11		0.13			0.39
Control Delay		82.2	2.3	0.0	4.8	25.6	1.0		25.0			50.6
Queue Delay		53.0	0.1	0.0	0.0	42.1	0.0		0.0			0.0
Total Delay		135.2	2.4	0.0	4.8	67.6	1.0		25.0			50.6
LOS		F	A	A	A	E	A		C			D
Approach Delay			35.7			64.3			25.0			29.4
Approach LOS			D			E			C			C
Queue Length 50th (m)		34.6	6.5	0.0	0.6	~278.6	1.5		3.2			17.2
Queue Length 95th (m)		#95.3	8.1	m0.0	m0.8	m#321.8	m1.9		12.0			32.2
Internal Link Dist (m)			112.1			81.1			65.8			63.4
Turn Bay Length (m)		65.0		15.0	30.0		15.0					
Base Capacity (vph)		286	2426	911	339	1852	763		325			279
Starvation Cap Reductn		0	492	0	0	275	0		0			0
Spillback Cap Reductn		78	619	0	0	7	0		2			0
Storage Cap Reductn		0	0	0	0	0	0		0			0
Reduced v/c Ratio		1.22	0.41	0.01	0.04	1.14	0.11		0.10			0.29

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 3 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	92
Future Volume (vph)	92
Satd. Flow (prot)	1483
Flt Permitted	
Satd. Flow (perm)	1415
Satd. Flow (RTOR)	92
Lane Group Flow (vph)	92
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Detector Phase	8
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	37.0
Total Split (s)	37.0
Total Split (%)	28.5%
Yellow Time (s)	3.0
All-Red Time (s)	4.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	7.0
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	22.3
Actuated g/C Ratio	0.17
v/c Ratio	0.29
Control Delay	10.2
Queue Delay	0.5
Total Delay	10.7
LOS	B
Approach Delay	
Approach LOS	
Queue Length 50th (m)	0.0
Queue Length 95th (m)	13.7
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	397
Starvation Cap Reductn	0
Spillback Cap Reductn	116
Storage Cap Reductn	0
Reduced v/c Ratio	0.33

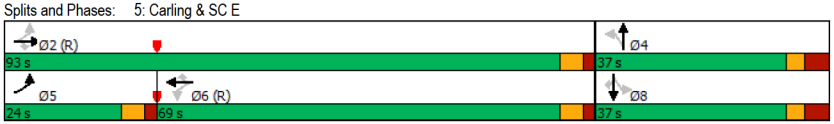
Intersection Summary

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 52.6	Intersection LOS: D
Intersection Capacity Utilization 121.2%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	703	141	438	1663	50	103	218	235	72	326	129
Future Volume (vph)	0	703	141	438	1663	50	103	218	235	72	326	129
Satd. Flow (prot)	0	3316	1483	1658	3316	1483	1658	1745	1483	1658	1745	1483
Flt Permitted				0.129			0.950			0.950		
Satd. Flow (perm)	0	3316	1405	225	3316	1354	1611	1745	1419	1621	1745	1399
Satd. Flow (RTOR)			129			84			235			123
Lane Group Flow (vph)	0	703	141	438	1663	50	103	218	235	72	326	129
Turn Type		NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Detector Phase		2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)		10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)		29.0	29.0	10.4	29.0	29.0	11.3	38.7	38.7	11.3	38.7	38.7
Total Split (s)		38.0	38.0	33.0	71.0	71.0	20.0	39.0	39.0	20.0	39.0	39.0
Total Split (%)		29.2%	29.2%	25.4%	54.6%	54.6%	15.4%	30.0%	30.0%	15.4%	30.0%	30.0%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)		2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	5.4	6.0	6.0	6.3	6.7	6.7	6.3	6.7	6.7
Lead/Lag		Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)		33.1	33.1	70.9	70.3	70.3	12.0	32.6	32.6	10.6	28.7	28.7
Actuated g/C Ratio		0.25	0.25	0.55	0.54	0.54	0.09	0.25	0.25	0.08	0.22	0.22
v/c Ratio		0.83	0.31	0.93	0.93	0.06	0.68	0.50	0.44	0.53	0.85	0.32
Control Delay		50.7	8.1	61.1	38.9	1.1	78.5	46.4	7.5	65.1	67.6	13.7
Queue Delay		8.6	0.0	0.0	45.7	0.0	0.0	0.0	0.0	0.0	11.7	0.1
Total Delay		59.3	8.1	61.1	84.6	1.1	78.5	46.4	7.5	65.1	79.3	13.8
LOS		E	A	E	F	A	E	D	A	E	E	B
Approach Delay		50.7			77.9			35.9			61.3	
Approach LOS		D			E			D			E	
Queue Length 50th (m)		93.1	10.0	~101.6	216.1	0.0	25.7	47.2	0.0	17.9	66.9	5.7
Queue Length 95th (m)		#121.7	23.1	#168.4	#275.8	2.0	44.7	73.2	20.4	33.4	#106.3	22.6
Internal Link Dist (m)		81.1			189.4			304.1			82.7	
Turn Bay Length (m)			15.0	70.0		15.0	50.0			30.0		50.0
Base Capacity (vph)		844	454	473	1793	770	174	449	540	174	433	440
Starvation Cap Reductn		115	0	0	0	0	0	0	0	0	86	0
Spillback Cap Reductn		0	0	0	494	0	0	0	0	0	0	18
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.96	0.31	0.93	1.28	0.06	0.59	0.49	0.44	0.41	0.94	0.31

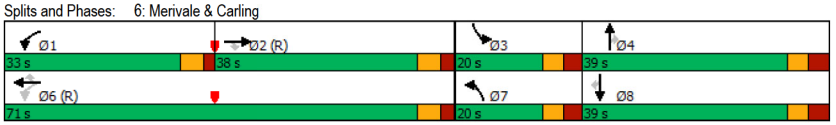
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 15 (12%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 64.4	Intersection LOS: E
Intersection Capacity Utilization 96.7%	ICU Level of Service F
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Merivale & Carling



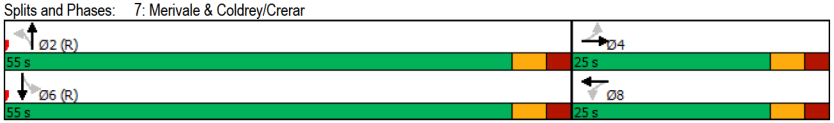
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	68	19	27	56	27	12	485	9	43	775	50
Future Volume (vph)	22	68	19	27	56	27	12	485	9	43	775	50
Satd. Flow (prot)	0	1682	0	0	1662	0	0	3300	0	0	3272	0
Flt Permitted		0.917			0.897			0.933			0.907	
Satd. Flow (perm)	0	1558	0	0	1508	0	0	3082	0	0	2972	0
Satd. Flow (RTOR)		13			19			4			14	
Lane Group Flow (vph)	0	109	0	0	110	0	0	506	0	0	868	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.8	24.8		24.8	24.8		33.8	33.8		33.8	33.8	
Total Split (s)	25.0	25.0		25.0	25.0		55.0	55.0		55.0	55.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.8			5.8			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		12.3			12.3			60.5			60.5	
Actuated g/C Ratio		0.15			0.15			0.76			0.76	
v/c Ratio		0.44			0.45			0.22			0.39	
Control Delay		31.7			30.3			4.5			5.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		31.7			30.3			4.5			5.5	
LOS		C			C			A			A	
Approach Delay		31.7			30.3			4.5			5.5	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		13.8			13.1			10.5			21.1	
Queue Length 95th (m)		25.1			24.5			23.5			45.1	
Internal Link Dist (m)		146.9			128.0			113.1			304.1	
Turn Bay Length (m)												
Base Capacity (vph)		383			376			2330			2249	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.28			0.29			0.22			0.39	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 63 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 8.7	Intersection LOS: A
Intersection Capacity Utilization 73.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Merivale & Coldrey/Crerar



Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations		↑↑	↱			↑↑↱		↱		
Traffic Vol, veh/h	0	900	40	0	1946	0	0	102	0	0
Future Vol, veh/h	0	900	40	0	1946	0	0	102	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	200	-	-	0	-	0	-	-
Veh in Median Storage, #	-	0	-	-	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	900	40	0	1946	0	0	102	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	-	0	0	-	-	450
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	556
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	-	556
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	12.9
HCM LOS		B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	556	-	-
HCM Lane V/C Ratio	0.183	-	-
HCM Control Delay (s)	12.9	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.7	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰		↑↳			↲
Traffic Vol, veh/h	0	29	73	0	40	0
Future Vol, veh/h	0	29	73	0	40	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	29	73	0	40	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	153	73	0	0	73	0
Stage 1	73	-	-	-	-	-
Stage 2	80	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	839	989	-	-	1527	-
Stage 1	950	-	-	-	-	-
Stage 2	943	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	817	989	-	-	1527	-
Mov Cap-2 Maneuver	817	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	918	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	7.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	989	1527	-
HCM Lane V/C Ratio	-	-	0.029	0.026	-
HCM Control Delay (s)	-	-	8.8	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Appendix J

Synchro Worksheets – 2028 Future Total Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	105	1604	224	301	279	0	0	418	374
Future Volume (vph)	0	0	0	105	1604	224	301	279	0	0	418	374
Satd. Flow (prot)	0	0	0	3216	4644	0	1658	1745	0	0	3316	1483
Flt Permitted				0.950			0.323					
Satd. Flow (perm)	0	0	0	3199	4644	0	555	1745	0	0	3316	1410
Satd. Flow (RTOR)					26							86
Lane Group Flow (vph)	0	0	0	105	1828	0	301	279	0	0	418	374
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Detector Phase				2	2		7	4			8	8
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				40.3	40.3		14.5	32.0			32.0	32.0
Total Split (s)				58.0	58.0		24.0	62.0			38.0	38.0
Total Split (%)				48.3%	48.3%		20.0%	51.7%			31.7%	31.7%
Yellow Time (s)				3.7	3.7		3.3	3.3			3.3	3.3
All-Red Time (s)				2.6	2.6		2.9	2.7			2.7	2.7
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				6.3	6.3		6.2	6.0			6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				C-Max	C-Max		None	Min			Min	Min
Act Effct Green (s)				54.5	54.5		53.0	53.2			29.2	29.2
Actuated g/C Ratio				0.45	0.45		0.44	0.44			0.24	0.24
v/c Ratio				0.07	0.86		0.74	0.36			0.52	0.92
Control Delay				15.5	30.1		26.6	15.0			41.3	62.0
Queue Delay				0.0	0.0		0.0	0.0			0.0	0.0
Total Delay				15.5	30.1		26.6	15.0			41.3	62.0
LOS				B	C		C	B			D	E
Approach Delay					29.3			21.0			51.1	
Approach LOS					C			C			D	
Queue Length 50th (m)				5.1	144.1		59.4	54.0			43.5	66.4
Queue Length 95th (m)				8.7	167.8		m84.5	m78.2			59.0	#118.5
Internal Link Dist (m)		193.0			341.6			139.1			131.1	
Turn Bay Length (m)				38.0								30.0
Base Capacity (vph)				1454	2124		408	814			884	439
Starvation Cap Reductn				0	0		0	0			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.07	0.86		0.74	0.34			0.47	0.85

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

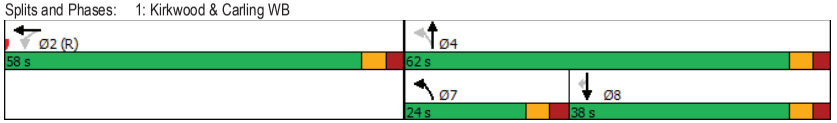
Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.1	Intersection LOS: C
Intersection Capacity Utilization 98.2%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Kirkwood & Carling WB



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	44	14	63	223	440	62
Future Volume (vph)	44	14	63	223	440	62
Satd. Flow (prot)	1658	1483	1658	1745	1745	1483
Flt Permitted	0.950		0.504			
Satd. Flow (perm)	1641	1451	879	1745	1745	1450
Satd. Flow (RTOR)		14				62
Lane Group Flow (vph)	44	14	63	223	440	62
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	15.9	15.9	35.9	35.9
Total Split (s)	24.0	24.0	36.0	36.0	36.0	36.0
Total Split (%)	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.6	11.6	45.5	45.5	45.5	45.5
Actuated g/C Ratio	0.19	0.19	0.76	0.76	0.76	0.76
v/c Ratio	0.14	0.05	0.09	0.17	0.33	0.06
Control Delay	19.8	9.6	1.4	1.3	6.4	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	9.6	1.4	1.3	6.4	2.3
LOS	B	A	A	A	A	A
Approach Delay	17.4			1.3	5.9	
Approach LOS	B			A	A	
Queue Length 50th (m)	4.2	0.0	0.3	1.1	19.3	0.0
Queue Length 95th (m)	9.5	3.3	1.6	4.1	49.8	4.4
Internal Link Dist (m)	51.1			82.7	69.7	
Turn Bay Length (m)			35.0			50.0
Base Capacity (vph)	503	454	666	1323	1323	1114
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.09	0.17	0.33	0.06

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 8 (13%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 5.2	Intersection LOS: A
Intersection Capacity Utilization 56.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Merivale & SC N

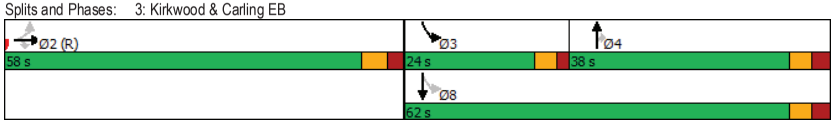
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	1915	450	0	0	0	0	462	455	344	191	0
Future Volume (vph)	134	1915	450	0	0	0	0	462	455	344	191	0
Satd. Flow (prot)	1426	4502	1483	0	0	0	0	3316	1483	1658	1745	0
Flt Permitted	0.950									0.323		
Satd. Flow (perm)	1426	4502	1396	0	0	0	0	3316	1483	564	1745	0
Satd. Flow (RTOR)			450									
Lane Group Flow (vph)	121	1928	450	0	0	0	0	462	455	344	191	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		2						4		3	8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					10.0	10.0	10.0	10.0	
Minimum Split (s)	29.2	29.2	29.2					26.1	26.1	23.1	26.1	
Total Split (s)	58.0	58.0	58.0					38.0	38.0	24.0	62.0	
Total Split (%)	48.3%	48.3%	48.3%					31.7%	31.7%	20.0%	51.7%	
Yellow Time (s)	3.7	3.7	3.7					3.3	3.3	3.3	3.3	
All-Red Time (s)	2.5	2.5	2.5					2.8	2.8	1.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2					6.1	6.1	5.1	6.1	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	C-Max					Min	Min	Min	Min	
Act Effct Green (s)	51.8	51.8	51.8					32.6	32.6	56.9	55.9	
Actuated g/C Ratio	0.43	0.43	0.43					0.27	0.27	0.47	0.47	
v/c Ratio	0.20	0.99	0.52					0.51	1.13	0.79	0.24	
Control Delay	22.3	52.8	4.4					39.6	126.3	45.4	25.5	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	22.3	52.8	4.4					39.6	126.3	45.4	25.5	
LOS	C	D	A					D	F	D	C	
Approach Delay		42.6						82.6			38.3	
Approach LOS		D						F			D	
Queue Length 50th (m)	20.2	171.7	0.0					48.9	~126.4	80.2	38.5	
Queue Length 95th (m)	35.1	#212.7	18.9					65.4	#188.6	#113.7	64.7	
Internal Link Dist (m)		150.0			320.1			71.9			139.1	
Turn Bay Length (m)	50.0		200.0						80.0			
Base Capacity (vph)	615	1943	858					899	402	439	812	
Starvation Cap Reductn	0	0	0					0	0	0	0	
Spillback Cap Reductn	0	0	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.20	0.99	0.52					0.51	1.13	0.78	0.24	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15 (13%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.13
Intersection Signal Delay: 51.3 Intersection LOS: D
Intersection Capacity Utilization 98.2% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Kirkwood & Carling EB



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1408	885	14	12	23
Future Volume (vph)	0	1408	885	14	12	23
Satd. Flow (prot)	0	3316	3316	1483	1537	0
Flt Permitted					0.983	
Satd. Flow (perm)	0	3316	3316	1402	1519	0
Satd. Flow (RTOR)				7	23	
Lane Group Flow (vph)	0	1408	885	14	35	0
Turn Type		NA	NA	Perm	Perm	
Protected Phases		2	6			
Permitted Phases				6	4	
Detector Phase		2	6	6	4	
Switch Phase						
Minimum Initial (s)		10.0	10.0	10.0	10.0	
Minimum Split (s)		15.3	42.3	42.3	38.1	
Total Split (s)		81.0	81.0	81.0	39.0	
Total Split (%)		67.5%	67.5%	67.5%	32.5%	
Yellow Time (s)		3.7	3.7	3.7	3.0	
All-Red Time (s)		1.6	1.6	1.6	3.1	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.3	5.3	5.3	6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max	C-Max	None	
Act Effct Green (s)		89.7	89.7	89.7	23.2	
Actuated g/C Ratio		0.75	0.75	0.75	0.19	
v/c Ratio		0.57	0.36	0.01	0.11	
Control Delay		6.5	3.7	1.9	18.0	
Queue Delay		0.0	0.1	0.0	0.0	
Total Delay		6.5	3.8	1.9	18.0	
LOS		A	A	A	B	
Approach Delay		6.5	3.7		18.0	
Approach LOS		A	A		B	
Queue Length 50th (m)		53.4	28.7	0.1	2.1	
Queue Length 95th (m)		m62.5	6.3	m0.2	10.1	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)				15.0		
Base Capacity (vph)		2478	2478	1049	433	
Starvation Cap Reductn		0	477	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.57	0.44	0.01	0.08	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 38 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 5.6	Intersection LOS: A
Intersection Capacity Utilization 65.0%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	136	128	1186	20	1	5	701	43	12	2	12	27
Future Volume (vph)	136	128	1186	20	1	5	701	43	12	2	12	27
Satd. Flow (prot)	0	1658	3316	1483	0	1658	3316	1483	0	1584	0	0
Flt Permitted		0.382				0.219				0.844		
Satd. Flow (perm)	0	649	3316	1351	0	379	3316	1330	0	1363	0	0
Satd. Flow (RTOR)				36				36		12		
Lane Group Flow (vph)	0	264	1186	20	0	6	701	43	0	26	0	0
Turn Type	Perm	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm
Protected Phases			2				6			4		
Permitted Phases	2	2		2	6	6		6	4			8
Detector Phase	2	2	2	2	6	6	6	6	4	4		8
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0
Minimum Split (s)	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0		37.0
Total Split (s)	83.0	83.0	83.0	83.0	83.0	83.0	83.0	83.0	37.0	37.0		37.0
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%		30.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0		3.0
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0		4.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0		
Total Lost Time (s)		5.6	5.6	5.6		5.6	5.6	5.6		7.0		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None
Act Effct Green (s)		97.9	97.9	97.9		97.9	97.9	97.9		14.0		
Actuated g/C Ratio		0.82	0.82	0.82		0.82	0.82	0.82		0.12		
v/c Ratio		0.50	0.44	0.02		0.02	0.26	0.04		0.15		
Control Delay		6.4	1.7	0.1		5.2	4.1	2.4		30.2		
Queue Delay		0.0	0.1	0.0		0.0	0.1	0.0		0.0		
Total Delay		6.4	1.8	0.1		5.2	4.2	2.4		30.2		
LOS		A	A	A		A	A	A		C		
Approach Delay			2.6				4.1			30.2		
Approach LOS			A				A			C		
Queue Length 50th (m)		5.4	12.7	0.0		0.3	17.4	0.3		3.1		
Queue Length 95th (m)		13.5	14.2	m0.0		m1.1	28.0	m1.6		9.8		
Internal Link Dist (m)			112.1				81.1			65.8		
Turn Bay Length (m)		65.0		15.0		30.0		15.0				
Base Capacity (vph)		529	2705	1109		309	2705	1092		349		
Starvation Cap Reductn		0	422	0		0	937	0		0		
Spillback Cap Reductn		0	319	0		0	0	0		0		
Storage Cap Reductn		0	0	0		0	0	0		0		
Reduced v/c Ratio		0.50	0.52	0.02		0.02	0.40	0.04		0.07		

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	39
Future Volume (vph)	0	39
Satd. Flow (prot)	1658	1483
Flt Permitted	0.740	
Satd. Flow (perm)	1281	1452
Satd. Flow (RTOR)		39
Lane Group Flow (vph)	27	39
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	37.0	37.0
Total Split (s)	37.0	37.0
Total Split (%)	30.8%	30.8%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	4.0	4.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.0	7.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)	14.0	14.0
Actuated g/C Ratio	0.12	0.12
v/c Ratio	0.18	0.19
Control Delay	47.3	14.3
Queue Delay	0.0	0.0
Total Delay	47.3	14.3
LOS	D	B
Approach Delay	27.8	
Approach LOS	C	
Queue Length 50th (m)	6.1	0.0
Queue Length 95th (m)	12.6	8.6
Internal Link Dist (m)	63.4	
Turn Bay Length (m)		
Base Capacity (vph)	320	392
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.08	0.10

Intersection Summary

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 4.1	Intersection LOS: A
Intersection Capacity Utilization 80.9%	ICU Level of Service D
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1113	115	165	500	42	115	249	441	39	277	139
Future Volume (vph)	0	1113	115	165	500	42	115	249	441	39	277	139
Satd. Flow (prot)	0	3316	1483	1658	3316	1483	1658	1745	1483	1658	1745	1483
Flt Permitted				0.084			0.950			0.950		
Satd. Flow (perm)	0	3316	1410	147	3316	1393	1639	1745	1437	1639	1745	1437
Satd. Flow (RTOR)			140			91			290			139
Lane Group Flow (vph)	0	1113	115	165	500	42	115	249	441	39	277	139
Turn Type		NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Detector Phase		2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)		10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)		29.0	29.0	10.4	29.0	29.0	11.3	38.7	38.7	11.3	38.7	38.7
Total Split (s)		48.0	48.0	12.0	60.0	60.0	21.0	39.0	39.0	21.0	39.0	39.0
Total Split (%)		40.0%	40.0%	10.0%	50.0%	50.0%	17.5%	32.5%	32.5%	17.5%	32.5%	32.5%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)		2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	5.4	6.0	6.0	6.3	6.7	6.7	6.3	6.7	6.7
Lead/Lag		Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)		44.9	44.9	63.9	63.3	63.3	12.5	34.5	34.5	8.3	25.2	25.2
Actuated g/C Ratio		0.37	0.37	0.53	0.53	0.53	0.10	0.29	0.29	0.07	0.21	0.21
v/c Ratio		0.90	0.19	0.68	0.29	0.05	0.66	0.50	0.71	0.34	0.76	0.34
Control Delay		35.3	2.1	39.6	17.9	0.1	69.9	39.4	19.6	57.6	51.6	10.1
Queue Delay		5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0
Total Delay		40.5	2.1	39.6	17.9	0.1	69.9	39.4	19.6	57.6	52.2	10.1
LOS		D	A	D	B	A	E	D	B	E	D	B
Approach Delay		36.9			21.9			32.9			39.8	
Approach LOS		D			C			C			D	
Queue Length 50th (m)		120.2	0.6	21.5	33.3	0.0	26.2	51.7	33.5	9.1	48.4	6.1
Queue Length 95th (m)		#174.5	4.7	#73.2	52.0	0.0	45.3	72.9	69.6	0.0	59.9	18.3
Internal Link Dist (m)		81.1			189.4			304.1			82.7	
Turn Bay Length (m)			15.0	70.0		15.0	50.0			30.0		50.0
Base Capacity (vph)		1239	614	241	1748	777	203	512	626	203	469	488
Starvation Cap Reductn		89	0	0	0	0	0	0	0	0	39	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.97	0.19	0.68	0.29	0.05	0.57	0.49	0.70	0.19	0.64	0.28

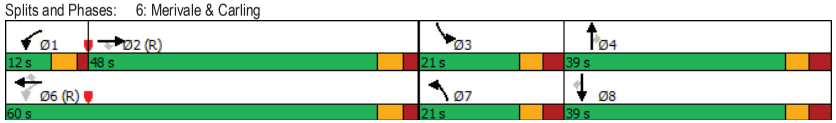
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 52 (43%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 33.0	Intersection LOS: C
Intersection Capacity Utilization 89.0%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Merivale & Carling



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	17	29	10	21	46	29	707	11	23	518	37
Future Volume (vph)	15	17	29	10	21	46	29	707	11	23	518	37
Satd. Flow (prot)	0	1599	0	0	1580	0	0	3301	0	0	3267	0
Flt Permitted		0.903			0.950			0.919			0.913	
Satd. Flow (perm)	0	1461	0	0	1509	0	0	3039	0	0	2989	0
Satd. Flow (RTOR)		29			46			3			16	
Lane Group Flow (vph)	0	61	0	0	77	0	0	747	0	0	578	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.8	24.8		24.8	24.8		33.8	33.8		33.8	33.8	
Total Split (s)	25.0	25.0		25.0	25.0		55.0	55.0		55.0	55.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.8			5.8			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		11.8			11.8			60.9			60.9	
Actuated g/C Ratio		0.15			0.15			0.76			0.76	
v/c Ratio		0.25			0.30			0.32			0.25	
Control Delay		20.3			17.4			4.9			4.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.3			17.4			4.9			4.5	
LOS		C			B			A			A	
Approach Delay		20.3			17.4			4.9			4.5	
Approach LOS		C			B			A			A	
Queue Length 50th (m)		4.4			4.3			17.1			12.0	
Queue Length 95th (m)		12.9			13.9			37.3			27.0	
Internal Link Dist (m)		146.9			128.0			113.1			304.1	
Turn Bay Length (m)												
Base Capacity (vph)		372			397			2315			2280	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.16			0.19			0.32			0.25	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 46 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.32

Intersection Signal Delay: 6.1	Intersection LOS: A
Intersection Capacity Utilization 62.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Merivale & Coldrey/Crerar

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations		↑↑	↱			↱↱		↱		
Traffic Vol, veh/h	0	1198	14	0	0	822	0	142	0	0
Future Vol, veh/h	0	1198	14	0	0	822	0	142	0	0
Conflicting Peds, #/hr	0	0	21	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	200	-	-	0	-	0	-	-
Veh in Median Storage, #	-	0	-	-	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1198	14	0	0	822	0	142	0	0

Major/Minor	Major1			Minor1	
Conflicting Flow All	-	0	0	-	620
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	431
Stage 1	0	-	-	0	-
Stage 2	0	-	-	0	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	-	-	-	-	424
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	17.7
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	424	-	-
HCM Lane V/C Ratio	0.335	-	-
HCM Control Delay (s)	17.7	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	1.5	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	40	102	0	14	0
Future Vol, veh/h	0	40	102	0	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	40	102	0	14	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	130	102	0	0	102	0
Stage 1	102	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	864	953	-	-	1490	-
Stage 1	922	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	856	953	-	-	1490	-
Mov Cap-2 Maneuver	856	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	7.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	953	1490	-
HCM Lane V/C Ratio	-	-	0.042	0.009	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	192	2448	296	214	536	0	0	500	409
Future Volume (vph)	0	0	0	192	2448	296	214	536	0	0	500	409
Satd. Flow (prot)	0	0	0	3216	4653	0	1658	1745	0	0	3316	1483
Flt Permitted				0.950			0.244					
Satd. Flow (perm)	0	0	0	3182	4653	0	421	1745	0	0	3316	1412
Satd. Flow (RTOR)					25							86
Lane Group Flow (vph)	0	0	0	192	2744	0	214	536	0	0	500	409
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Detector Phase				2	2		7	4			8	8
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				40.3	40.3		14.5	32.0			32.0	32.0
Total Split (s)				67.0	67.0		20.0	53.0			33.0	33.0
Total Split (%)				55.8%	55.8%		16.7%	44.2%			27.5%	27.5%
Yellow Time (s)				3.7	3.7		3.3	3.3			3.3	3.3
All-Red Time (s)				2.6	2.6		2.9	2.7			2.7	2.7
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				6.3	6.3		6.2	6.0			6.0	6.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				C-Max	C-Max		None	Min			Min	Min
Act Effct Green (s)				60.7	60.7		46.8	47.0			27.3	27.3
Actuated g/C Ratio				0.51	0.51		0.39	0.39			0.23	0.23
v/c Ratio				0.12	1.16		0.71	0.78			0.66	1.06
Control Delay				15.9	106.2		34.4	38.9			47.2	97.3
Queue Delay				0.0	0.0		0.0	6.2			0.0	0.0
Total Delay				15.9	106.2		34.4	45.1			47.2	97.3
LOS				B	F		C	D			D	F
Approach Delay					100.3			42.0			69.8	
Approach LOS					F			D			E	
Queue Length 50th (m)				11.8	~280.1		41.8	127.8			56.9	~89.6
Queue Length 95th (m)				18.1	#307.5		#61.4	168.5			75.3	#150.9
Internal Link Dist (m)		193.0			341.6			139.1			131.1	
Turn Bay Length (m)				38.0								30.0
Base Capacity (vph)				1609	2365		306	683			754	387
Starvation Cap Reductn				0	0		0	103			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.12	1.16		0.70	0.92			0.66	1.06

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 39 (33%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

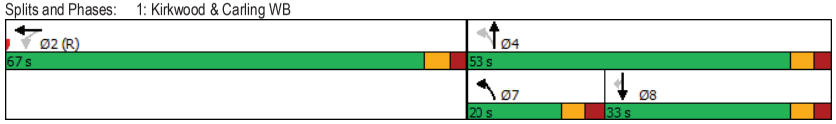
Maximum v/c Ratio: 1.16

Intersection Signal Delay: 84.7	Intersection LOS: F
Intersection Capacity Utilization 141.1%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Kirkwood & Carling WB



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	60	64	213	489	90
Future Volume (vph)	82	60	64	213	489	90
Satd. Flow (prot)	1658	1483	1658	1745	1745	1483
Flt Permitted	0.950		0.463			
Satd. Flow (perm)	1595	1451	807	1745	1745	1448
Satd. Flow (RTOR)		60				90
Lane Group Flow (vph)	82	60	64	213	489	90
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	15.9	15.9	35.9	35.9
Total Split (s)	24.0	24.0	41.0	41.0	41.0	41.0
Total Split (%)	36.9%	36.9%	63.1%	63.1%	63.1%	63.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.6	11.6	46.2	46.2	46.2	46.2
Actuated g/C Ratio	0.18	0.18	0.71	0.71	0.71	0.71
v/c Ratio	0.29	0.19	0.11	0.17	0.39	0.09
Control Delay	24.9	7.9	4.2	4.8	7.1	1.9
Queue Delay	0.0	0.1	0.0	0.0	0.1	0.0
Total Delay	24.9	8.0	4.2	4.8	7.2	1.9
LOS	C	A	A	A	A	A
Approach Delay	17.8			4.7	6.4	
Approach LOS	B			A	A	
Queue Length 50th (m)	8.9	0.0	0.4	1.4	22.3	0.0
Queue Length 95th (m)	16.9	7.3	18.5	67.5	56.0	5.0
Internal Link Dist (m)	51.1			82.7	69.7	
Turn Bay Length (m)			35.0			50.0
Base Capacity (vph)	451	453	573	1240	1240	1055
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	71	0	0	108	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.16	0.11	0.17	0.43	0.09

Intersection Summary
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 27 (42%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 58.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Merivale & SC N

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	426	1325	444	0	0	0	0	329	356	439	262	0
Future Volume (vph)	426	1325	444	0	0	0	0	329	356	439	262	0
Satd. Flow (prot)	1426	4493	1483	0	0	0	0	3316	1483	1658	1745	0
Flt Permitted	0.950	0.998								0.374		
Satd. Flow (perm)	1426	4493	1393	0	0	0	0	3316	1461	652	1745	0
Satd. Flow (RTOR)			403									
Lane Group Flow (vph)	383	1368	444	0	0	0	0	329	356	439	262	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		2						4		3	8	
Permitted Phases	2		2						4	8		
Detector Phase	2	2	2					4	4	3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					10.0	10.0	10.0	10.0	
Minimum Split (s)	29.2	29.2	29.2					26.1	26.1	23.1	26.1	
Total Split (s)	61.0	61.0	61.0					29.0	29.0	30.0	59.0	
Total Split (%)	50.8%	50.8%	50.8%					24.2%	24.2%	25.0%	49.2%	
Yellow Time (s)	3.7	3.7	3.7					3.3	3.3	3.3	3.3	
All-Red Time (s)	2.5	2.5	2.5					2.8	2.8	1.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2					6.1	6.1	5.1	6.1	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	C-Max					Min	Min	Min	Min	
Act Effct Green (s)	54.8	54.8	54.8					23.5	23.5	53.9	52.9	
Actuated g/C Ratio	0.46	0.46	0.46					0.20	0.20	0.45	0.44	
v/c Ratio	0.59	0.67	0.52					0.51	1.25	0.89	0.34	
Control Delay	28.8	27.5	5.4					46.5	178.8	31.9	8.0	
Queue Delay	0.4	0.1	0.0					0.0	0.0	0.0	0.0	
Total Delay	29.2	27.6	5.4					46.5	178.8	31.9	8.0	
LOS	C	C	A					D	F	C	A	
Approach Delay		23.4						115.3			23.0	
Approach LOS		C						F			C	
Queue Length 50th (m)	76.1	95.3	5.3					37.0	~106.1	87.1	6.0	
Queue Length 95th (m)	112.9	112.5	27.1					51.7	#163.5	#117.7	16.2	
Internal Link Dist (m)		150.0			323.9			71.9			139.1	
Turn Bay Length (m)	50.0		200.0						80.0			
Base Capacity (vph)	651	2051	855					648	285	501	769	
Starvation Cap Reductn	0	0	0					0	0	0	0	
Spillback Cap Reductn	48	101	0					0	0	0	0	
Storage Cap Reductn	0	0	0					0	0	0	0	
Reduced v/c Ratio	0.64	0.70	0.52					0.51	1.25	0.88	0.34	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

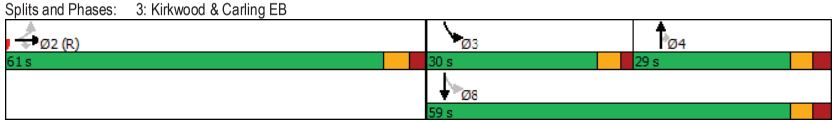
Maximum v/c Ratio: 1.25

Intersection Signal Delay: 40.9	Intersection LOS: D
Intersection Capacity Utilization 141.1%	ICU Level of Service H
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Kirkwood & Carling EB



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1073	2095	5	35	38
Future Volume (vph)	0	1073	2095	5	35	38
Satd. Flow (prot)	0	3316	3316	1483	1566	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	3316	3316	1382	1535	0
Satd. Flow (RTOR)				1	13	
Lane Group Flow (vph)	0	1073	2095	5	73	0
Turn Type		NA	NA	Perm	Perm	
Protected Phases		2	6			
Permitted Phases				6	4	
Detector Phase		2	6	6	4	
Switch Phase						
Minimum Initial (s)		10.0	10.0	10.0	10.0	
Minimum Split (s)		15.3	59.3	59.3	38.1	
Total Split (s)		91.0	91.0	91.0	39.0	
Total Split (%)		70.0%	70.0%	70.0%	30.0%	
Yellow Time (s)		3.7	3.7	3.7	3.0	
All-Red Time (s)		1.6	1.6	1.6	3.1	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.3	5.3	5.3	6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max	C-Max	None	
Act Effct Green (s)		99.7	99.7	99.7	23.2	
Actuated g/C Ratio		0.77	0.77	0.77	0.18	
v/c Ratio		0.42	0.82	0.00	0.26	
Control Delay		8.4	16.8	6.6	36.3	
Queue Delay		0.0	0.4	0.0	0.0	
Total Delay		8.4	17.2	6.6	36.3	
LOS		A	B	A	D	
Approach Delay		8.4	17.2		36.3	
Approach LOS		A	B		D	
Queue Length 50th (m)		66.0	109.1	0.2	12.1	
Queue Length 95th (m)		80.3	m104.4	m0.2	25.1	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)				15.0		
Base Capacity (vph)		2542	2542	1059	398	
Starvation Cap Reductn		0	117	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.42	0.86	0.00	0.18	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 107 (82%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 14.7	Intersection LOS: B
Intersection Capacity Utilization 84.2%	ICU Level of Service E
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	102	151	780	11	2	12	1887	84	15	1	17	79
Future Volume (vph)	102	151	780	11	2	12	1887	84	15	1	17	79
Satd. Flow (prot)	0	1658	3316	1483	0	1658	3316	1483	0	1562	0	0
Flt Permitted		0.051				0.356				0.860		
Satd. Flow (perm)	0	89	3316	1233	0	589	3316	1303	0	1355	0	0
Satd. Flow (RTOR)				34				81		17		
Lane Group Flow (vph)	0	253	780	11	0	14	1887	84	0	33	0	0
Turn Type	pm+pt	pm+pt	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2				6			4		
Permitted Phases	2	2		2	6	6		6	4			8
Detector Phase	5	5	2	2	6	6	6	6	4	4		8
Switch Phase												
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0
Minimum Split (s)	10.6	10.6	23.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0		37.0
Total Split (s)	24.0	24.0	93.0	93.0	69.0	69.0	69.0	69.0	37.0	37.0		37.0
Total Split (%)	18.5%	18.5%	71.5%	71.5%	53.1%	53.1%	53.1%	53.1%	28.5%	28.5%		28.5%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0		3.0
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0		4.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0		
Total Lost Time (s)		5.6	5.6	5.6		5.6	5.6	5.6		7.0		
Lead/Lag	Lead	Lead			Lag	Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes	Yes				
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None
Act Effct Green (s)		95.1	95.1	95.1		72.6	72.6	72.6		22.3		
Actuated g/C Ratio		0.73	0.73	0.73		0.56	0.56	0.56		0.17		
v/c Ratio		0.94	0.32	0.01		0.04	1.02	0.11		0.13		
Control Delay		82.8	2.3	0.0		4.9	35.1	0.9		25.0		
Queue Delay		53.6	0.2	0.0		0.0	31.9	0.0		0.0		
Total Delay		136.3	2.5	0.0		4.9	67.0	0.9		25.0		
LOS		F	A	A		A	E	A		C		
Approach Delay			34.9				63.7			25.0		
Approach LOS			C				E			C		
Queue Length 50th (m)		35.4	6.8	0.0		0.7	~304.6	1.4		3.2		
Queue Length 95th (m)		#95.5	8.3	m0.0		m0.9	m#319.6	m1.7		12.0		
Internal Link Dist (m)			112.1				81.1			65.8		
Turn Bay Length (m)		65.0		15.0		30.0		15.0				
Base Capacity (vph)		286	2426	911		329	1852	763		325		
Starvation Cap Reductn		0	448	0		0	274	0		0		
Spillback Cap Reductn		85	697	0		0	29	0		3		
Storage Cap Reductn		0	0	0		0	0	0		0		
Reduced v/c Ratio		1.26	0.45	0.01		0.04	1.20	0.11		0.10		

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 3 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2	92
Future Volume (vph)	2	92
Satd. Flow (prot)	1665	1483
Flt Permitted	0.707	
Satd. Flow (perm)	1211	1415
Satd. Flow (RTOR)		70
Lane Group Flow (vph)	81	92
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	37.0	37.0
Total Split (s)	37.0	37.0
Total Split (%)	28.5%	28.5%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	4.0	4.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.0	7.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)	22.3	22.3
Actuated g/C Ratio	0.17	0.17
v/c Ratio	0.39	0.31
Control Delay	50.6	16.4
Queue Delay	0.0	0.6
Total Delay	50.6	17.1
LOS	D	B
Approach Delay	32.8	
Approach LOS	C	
Queue Length 50th (m)	17.2	4.4
Queue Length 95th (m)	32.2	18.7
Internal Link Dist (m)	63.4	
Turn Bay Length (m)		
Base Capacity (vph)	279	380
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	115
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.29	0.35

Intersection Summary

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 52.4	Intersection LOS: D
Intersection Capacity Utilization 123.8%	ICU Level of Service H

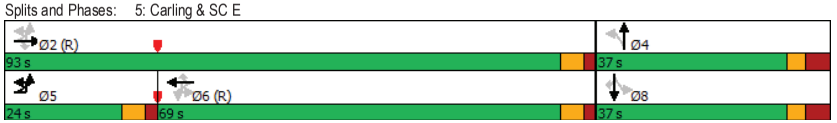
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	736	148	460	1746	53	108	229	247	76	343	135
Future Volume (vph)	0	736	148	460	1746	53	108	229	247	76	343	135
Satd. Flow (prot)	0	3316	1483	1658	3316	1483	1658	1745	1483	1658	1745	1483
Flt Permitted				0.111			0.950			0.950		
Satd. Flow (perm)	0	3316	1405	194	3316	1354	1611	1745	1419	1621	1745	1399
Satd. Flow (RTOR)			129			84			247			123
Lane Group Flow (vph)	0	736	148	460	1746	53	108	229	247	76	343	135
Turn Type		NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Detector Phase		2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)		10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)		29.0	29.0	10.4	29.0	29.0	11.3	38.7	38.7	11.3	38.7	38.7
Total Split (s)		38.0	38.0	33.0	71.0	71.0	20.0	39.0	39.0	20.0	39.0	39.0
Total Split (%)		29.2%	29.2%	25.4%	54.6%	54.6%	15.4%	30.0%	30.0%	15.4%	30.0%	30.0%
Yellow Time (s)		3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)		2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	5.4	6.0	6.0	6.3	6.7	6.7	6.3	6.7	6.7
Lead/Lag		Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)		32.0	32.0	70.1	69.5	69.5	12.2	33.3	33.3	10.9	29.3	29.3
Actuated g/C Ratio		0.25	0.25	0.54	0.53	0.53	0.09	0.26	0.26	0.08	0.23	0.23
v/c Ratio		0.90	0.33	0.99	0.99	0.07	0.70	0.51	0.45	0.55	0.88	0.33
Control Delay		57.4	8.6	76.6	48.8	1.3	79.8	46.6	7.5	65.8	69.7	14.3
Queue Delay		24.4	0.0	0.0	40.5	0.0	0.0	0.0	0.0	0.0	16.8	0.1
Total Delay		81.7	8.6	76.6	89.3	1.3	79.8	46.6	7.5	65.8	86.6	14.4
LOS		F	A	E	F	A	E	D	A	E	F	B
Approach Delay		69.5			84.6			36.2			66.2	
Approach LOS		E			F			D			E	
Queue Length 50th (m)		98.4	12.4	~119.9	~255.7	0.0	26.9	49.9	0.0	18.9	70.1	6.5
Queue Length 95th (m)		#131.4	23.2	#186.3	#299.1	2.5	#48.2	77.1	21.0	34.7	#120.9	25.1
Internal Link Dist (m)		81.1			189.4			304.1			82.7	
Turn Bay Length (m)			15.0	70.0		15.0	50.0			30.0		50.0
Base Capacity (vph)		816	443	466	1772	763	174	453	551	174	433	440
Starvation Cap Reductn		108	0	0	0	0	0	0	0	0	82	0
Spillback Cap Reductn		0	0	0	519	0	0	0	0	0	0	18
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio		1.04	0.33	0.99	1.39	0.07	0.62	0.51	0.45	0.44	0.98	0.32

Intersection Summary

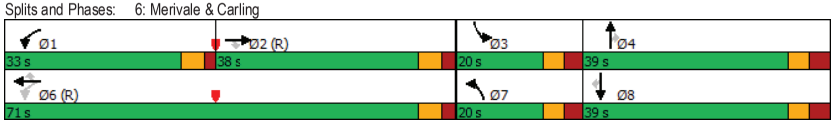
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 15 (12%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99
Intersection Signal Delay: 72.5 — Intersection LOS: E
Intersection Capacity Utilization 99.5% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Merivale & Carling



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	68	19	27	56	27	12	510	9	43	813	50
Future Volume (vph)	22	68	19	27	56	27	12	510	9	43	813	50
Satd. Flow (prot)	0	1682	0	0	1662	0	0	3300	0	0	3276	0
Flt Permitted		0.917			0.897			0.932			0.906	
Satd. Flow (perm)	0	1558	0	0	1508	0	0	3079	0	0	2973	0
Satd. Flow (RTOR)		13			19			4			14	
Lane Group Flow (vph)	0	109	0	0	110	0	0	531	0	0	906	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.8	24.8		24.8	24.8		33.8	33.8		33.8	33.8	
Total Split (s)	25.0	25.0		25.0	25.0		55.0	55.0		55.0	55.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%		68.8%	68.8%		68.8%	68.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.8			5.8			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		12.3			12.3			60.5			60.5	
Actuated g/C Ratio		0.15			0.15			0.76			0.76	
v/c Ratio		0.44			0.45			0.23			0.40	
Control Delay		31.7			30.3			4.6			5.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		31.7			30.3			4.6			5.7	
LOS		C			C			A			A	
Approach Delay		31.7			30.3			4.6			5.7	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		13.8			13.1			11.2			22.4	
Queue Length 95th (m)		25.1			24.5			24.8			48.0	
Internal Link Dist (m)		146.9			128.0			113.1			304.1	
Turn Bay Length (m)												
Base Capacity (vph)		383			376			2328			2250	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.28			0.29			0.23			0.40	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 63 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.45
Intersection Signal Delay: 8.7 — Intersection LOS: A
Intersection Capacity Utilization 74.1% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Merivale & Coldrey/Crerar

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations		↑↑	↱			↱↑		↱		
Traffic Vol, veh/h	0	943	40	0	0	2044	0	102	0	0
Future Vol, veh/h	0	943	40	0	0	2044	0	102	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized		-	None		-	None		None		
Storage Length	-	-	200	-	-	0	-	0	-	-
Veh in Median Storage, #	-	0	-	-	-	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	943	40	0	0	2044	0	102	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	-	0	0		-	472
Stage 1	-	-	-		-	-
Stage 2	-	-	-		-	-
Critical Hdwy	-	-	-		-	6.94
Critical Hdwy Stg 1	-	-	-		-	-
Critical Hdwy Stg 2	-	-	-		-	-
Follow-up Hdwy	-	-	-		-	3.32
Pot Cap-1 Maneuver	0	-	-		0	538
Stage 1	0	-	-		0	-
Stage 2	0	-	-		0	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-		-	538
Mov Cap-2 Maneuver	-	-	-		-	-
Stage 1	-	-	-		-	-
Stage 2	-	-	-		-	-

Approach	EB	NB
HCM Control Delay, s	0	13.3
HCM LOS		B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	538	-	-
HCM Lane V/C Ratio	0.19	-	-
HCM Control Delay (s)	13.3	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.7	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰		↑↳			↲
Traffic Vol, veh/h	0	29	73	0	40	0
Future Vol, veh/h	0	29	73	0	40	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	29	73	0	40	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	153	73	0	0	73	0
Stage 1	73	-	-	-	-	-
Stage 2	80	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	839	989	-	-	1527	-
Stage 1	950	-	-	-	-	-
Stage 2	943	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	817	989	-	-	1527	-
Mov Cap-2 Maneuver	817	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	918	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	7.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	989	1527	-
HCM Lane V/C Ratio	-	-	0.029	0.026	-
HCM Control Delay (s)	-	-	8.8	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Appendix K

TDM Checklists

TDM Measures Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		1. TDM PROGRAM MANAGEMENT	
		1.1 Program coordinator	
BASIC	★	1.1.1 Designate an internal coordinator, or contract with an external coordinator	☐
		1.2 Travel surveys	
BETTER		1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
		2. WALKING AND CYCLING	
		2.1 Information on walking/cycling routes & destinations	
BASIC		2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances	☑
		2.2 Bicycle skills training	
		Commuter travel	
BETTER	★	2.2.1 Offer on-site cycling courses for commuters, or subsidize off-site courses	☐
		2.3 Valet bike parking	
		Visitor travel	
BETTER		2.3.1 Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	☐

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		3. TRANSIT	
		3.1 Transit information	
BASIC		3.1.1 Display relevant transit schedules and route maps at entrances	☑
BASIC		3.1.2 Provide online links to OC Transpo and STO information	☐
BETTER		3.1.3 Provide real-time arrival information display at entrances	☐
		3.2 Transit fare incentives	
		Commuter travel	
BETTER		3.2.1 Offer preloaded PRESTO cards to encourage commuters to use transit	☐
BETTER	★	3.2.2 Subsidize or reimburse monthly transit pass purchases by employees	☐
		Visitor travel	
BETTER		3.2.3 Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	☐
		3.3 Enhanced public transit service	
		Commuter travel	
BETTER		3.3.1 Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	☐
		Visitor travel	
BETTER		3.3.2 Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	☐
		3.4 Private transit service	
		Commuter travel	
BETTER		3.4.1 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	☐
		Visitor travel	
BETTER		3.4.2 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	☐

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		4.	**RIDESHARING**	
		4.1	**Ridematching service**	
			Commuter travel	
BASIC	★	4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com	☐
		4.2	**Carpool parking price incentives**	
			Commuter travel	
BETTER		4.2.1	Provide discounts on parking costs for registered carpools	☐
		4.3	**Vanpool service**	
			Commuter travel	
BETTER		4.3.1	Provide a vanpooling service for long-distance commuters	☐
		5.	**CARSHARING & BIKESHARING**	
		5.1	**Bikeshare stations & memberships**	
BETTER		5.1.1	Contract with provider to install on-site bikeshare station for use by commuters and visitors	☐
			Commuter travel	
BETTER		5.1.2	Provide employees with bikeshare memberships for local business travel	☐
		5.2	**Carshare vehicles & memberships**	
			Commuter travel	
BETTER		5.2.1	Contract with provider to install on-site carshare vehicles and promote their use by tenants	☐
BETTER		5.2.2	Provide employees with carshare memberships for local business travel	☐
		6.	**PARKING**	
		6.1	**Priced parking**	
			Commuter travel	
BASIC	★	6.1.1	Charge for long-term parking (daily, weekly, monthly)	☑
BASIC		6.1.2	Unbundle parking cost from lease rates at multi-tenant sites	☑
			Visitor travel	
BETTER		6.1.3	Charge for short-term parking (hourly)	☐

TDM Measures Checklist **City of Ottawa**
Version 1.0 (30 June 2017)

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		7.	**TDM MARKETING & COMMUNICATIONS**	
		7.1	**Multimodal travel information**	
			Commuter travel	
BASIC	★	7.1.1	Provide a multimodal travel option information package to new/relocating employees and students	☑
			Visitor travel	
BETTER	★	7.1.2	Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	☐
		7.2	**Personalized trip planning**	
			Commuter travel	
BETTER	★	7.2.1	Offer personalized trip planning to new/relocating employees	☐
		7.3	**Promotions**	
			Commuter travel	
BETTER		7.3.1	Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	☐
		8.	**OTHER INCENTIVES & AMENITIES**	
		8.1	**Emergency ride home**	
			Commuter travel	
BETTER	★	8.1.1	Provide emergency ride home service to non-driving commuters	☐
		8.2	**Alternative work arrangements**	
			Commuter travel	
BASIC	★	8.2.1	Encourage flexible work hours	☐
BETTER		8.2.2	Encourage compressed workweeks	☐
BETTER	★	8.2.3	Encourage telework	☐
		8.3	**Local business travel options**	
			Commuter travel	
BASIC	★	8.3.1	Provide local business travel options that minimize the need for employees to bring a personal car to work	☐
		8.4	**Commuter incentives**	
			Commuter travel	
BETTER		8.4.1	Offer employees a taxable, mode-neutral commuting allowance	☐
		8.5	**On-site amenities**	
			Commuter travel	
BETTER		8.5.1	Provide on-site amenities/services to minimize mid-day or mid-commute errands	☐

TDM Measures Checklist:
Residential Developments (multi-family, condominium or subdivision)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

		TDM measures: *Residential developments*	Check if proposed & add descriptions
	1.	**TDM PROGRAM MANAGEMENT**	
	1.1	**Program coordinator**	
BASIC ★	1.1.1	Designate an internal coordinator, or contract with an external coordinator	☐
	1.2	**Travel surveys**	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
	2.	**WALKING AND CYCLING**	
	2.1	**Information on walking/cycling routes & destinations**	
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances *(multi-family, condominium)*	☑
	2.2	**Bicycle skills training**	
BETTER	2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	☐

		TDM measures: *Residential developments*	Check if proposed & add descriptions
	3.	**TRANSIT**	
	3.1	**Transit information**	
BASIC	3.1.1	Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☑
BETTER	3.1.2	Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
	3.2	**Transit fare incentives**	
BASIC ★	3.2.1	Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☑
BETTER	3.2.2	Offer at least one year of free monthly transit passes on residence purchase/move-in	☐
	3.3	**Enhanced public transit service**	
BETTER ★	3.3.1	Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐
	3.4	**Private transit service**	
BETTER	3.4.1	Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐
	4.	**CARSHARING & BIKESHARING**	
	4.1	**Bikeshare stations & memberships**	
BETTER	4.1.1	Contract with provider to install on-site bikeshare station (*multi-family)*	☑
BETTER	4.1.2	Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
	4.2	**Carshare vehicles & memberships**	
BETTER	4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	☑
BETTER	4.2.2	Provide residents with carshare memberships, either free or subsidized	☐
	5.	**PARKING**	
	5.1	**Priced parking**	
BASIC ★	5.1.1	Unbundle parking cost from purchase price *(condominium)*	☑
BASIC ★	5.1.2	Unbundle parking cost from monthly rent *(multi-family)*	☑

			TDM measures: *Residential developments*	Check if proposed & add descriptions
		6.	**TDM MARKETING & COMMUNICATIONS**	
		6.1	**Multimodal travel information**	
BASIC	★	6.1.1	Provide a multimodal travel option information package to new residents	☑
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐

TDM-Supportive Development Design and Infrastructure Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

			TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
		1.	**WALKING & CYCLING: ROUTES**	
		1.1	**Building location & access points**	
BASIC		1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☑
BASIC		1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑
BASIC		1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑
		1.2	**Facilities for walking & cycling**	
REQUIRED		1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☐
REQUIRED		1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☐
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☐
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☐
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

TDM-Supportive Development Design and Infrastructure Checklist **City of Ottawa**
Version 1.0 (30 June 2017)

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	☐
BETTER	2.1.5	Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☑
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	☐
	2.3	**Shower & change facilities**	
BASIC	2.3.1	Provide shower and change facilities for the use of active commuters	☐
BETTER	2.3.2	In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	☐
	2.4	**Bicycle repair station**	
BETTER	2.4.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☑

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	4.2	**Carpool parking**	
BASIC	4.2.1	Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	☐
BETTER	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☑
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	☐
	7.	**OTHER**	
	7.1	**On-site amenities to minimize off-site trips**	
BETTER	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	☐

TDM-Supportive Development Design and Infrastructure Checklist:
Residential Developments (multi-family or condominium)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☑
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☐
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☐
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☐
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☐
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☑
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☐
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐

TDM-Supportive Development Design and Infrastructure Checklist **City of Ottawa**
Version 1.0 (30 June 2017)

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☑
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☑
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☐
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☐

Appendix L

Synchro Worksheets – Carling and Westgate SC (east) Alternative Phasing

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	136	128	1186	20	1	5	701	43	12	2	12	27
Future Volume (vph)	136	128	1186	20	1	5	701	43	12	2	12	27
Satd. Flow (prot)	0	1658	3316	1483	0	1658	3316	1483	0	1584	0	0
Flt Permitted		0.950				0.238				0.844		
Satd. Flow (perm)	0	1606	3316	1351	0	410	3316	1329	0	1363	0	0
Satd. Flow (RTOR)				36				77		12		
Lane Group Flow (vph)	0	264	1186	20	0	6	701	43	0	26	0	0
Turn Type	Prot	Prot	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2				6			4		
Permitted Phases				2	6	6		6	4			8
Detector Phase	5	5	2	2	6	6	6	6	4	4		8
Switch Phase												
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0
Minimum Split (s)	9.5	9.5	23.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0		37.0
Total Split (s)	24.0	24.0	83.0	83.0	59.0	59.0	59.0	59.0	37.0	37.0		37.0
Total Split (%)	20.0%	20.0%	69.2%	69.2%	49.2%	49.2%	49.2%	49.2%	30.8%	30.8%		30.8%
Yellow Time (s)	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0		3.0
All-Red Time (s)	1.0	1.0	1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0		4.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0		
Total Lost Time (s)		4.5	5.6	5.6		5.6	5.6	5.6		7.0		
Lead/Lag	Lead	Lead			Lag	Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes	Yes				
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None
Act Effct Green (s)		24.4	97.9	97.9		67.9	67.9	67.9		14.0		
Actuated g/C Ratio		0.20	0.82	0.82		0.57	0.57	0.57		0.12		
v/c Ratio		0.79	0.44	0.02		0.03	0.37	0.05		0.15		
Control Delay		54.8	8.0	3.6		13.7	13.0	0.7		30.2		
Queue Delay		0.0	0.4	0.0		0.0	0.2	0.0		0.0		
Total Delay		54.8	8.4	3.6		13.7	13.2	0.7		30.2		
LOS		D	A	A		B	B	A		C		
Approach Delay			16.7				12.5			30.2		
Approach LOS			B				B			C		
Queue Length 50th (m)		63.8	50.0	0.0		0.5	34.6	0.1		3.1		
Queue Length 95th (m)		#118.9	81.2	m0.9		m1.8	45.6	m0.9		9.8		
Internal Link Dist (m)			112.1				81.1			65.8		
Turn Bay Length (m)		65.0		15.0		30.0		15.0				
Base Capacity (vph)		336	2705	1109		232	1877	786		349		
Starvation Cap Reductn		0	896	0		0	492	0		0		
Spillback Cap Reductn		0	640	0		0	25	0		0		
Storage Cap Reductn		0	0	0		0	0	0		0		
Reduced v/c Ratio		0.79	0.66	0.02		0.03	0.51	0.05		0.07		

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	39
Future Volume (vph)	0	39
Satd. Flow (prot)	1658	1483
Flt Permitted	0.740	
Satd. Flow (perm)	1281	1452
Satd. Flow (RTOR)		65
Lane Group Flow (vph)	27	39
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	37.0	37.0
Total Split (s)	37.0	37.0
Total Split (%)	30.8%	30.8%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	4.0	4.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.0	7.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)	14.0	14.0
Actuated g/C Ratio	0.12	0.12
v/c Ratio	0.18	0.17
Control Delay	47.3	4.7
Queue Delay	0.0	0.0
Total Delay	47.3	4.7
LOS	D	A
Approach Delay	22.1	
Approach LOS	C	
Queue Length 50th (m)	6.1	0.0
Queue Length 95th (m)	12.6	3.8
Internal Link Dist (m)	63.4	
Turn Bay Length (m)		
Base Capacity (vph)	320	411
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.08	0.09

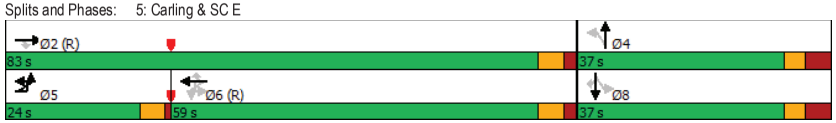
Intersection Summary

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 15.6	Intersection LOS: B
Intersection Capacity Utilization 80.0%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	102	151	780	11	2	12	1887	84	15	1	17	79
Future Volume (vph)	102	151	780	11	2	12	1887	84	15	1	17	79
Satd. Flow (prot)	0	1658	3316	1483	0	1658	3316	1483	0	1562	0	0
Flt Permitted		0.950				0.356				0.860		
Satd. Flow (perm)	0	1646	3316	1233	0	589	3316	1303	0	1355	0	0
Satd. Flow (RTOR)				34				81		17		
Lane Group Flow (vph)	0	253	780	11	0	14	1887	84	0	33	0	0
Turn Type	Prot	Prot	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2				6			4		
Permitted Phases				2	6	6		6	4			8
Detector Phase	5	5	2	2	6	6	6	6	4	4		8
Switch Phase												
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0
Minimum Split (s)	10.6	10.6	23.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0		37.0
Total Split (s)	24.0	24.0	93.0	93.0	69.0	69.0	69.0	69.0	37.0	37.0		37.0
Total Split (%)	18.5%	18.5%	71.5%	71.5%	53.1%	53.1%	53.1%	53.1%	28.5%	28.5%		28.5%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0		3.0
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0		4.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0		0.0		
Total Lost Time (s)		5.6	5.6	5.6		5.6	5.6	5.6		7.0		
Lead/Lag	Lead	Lead			Lag	Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes	Yes				
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None
Act Effct Green (s)		22.8	95.1	95.1		66.7	66.7	66.7		22.3		
Actuated g/C Ratio		0.18	0.73	0.73		0.51	0.51	0.51		0.17		
v/c Ratio		0.87	0.32	0.01		0.05	1.11	0.12		0.13		
Control Delay		83.5	2.3	0.0		5.0	72.6	1.0		25.0		
Queue Delay		54.2	0.2	0.0		0.0	0.6	0.0		0.0		
Total Delay		137.7	2.5	0.0		5.0	73.2	1.0		25.0		
LOS		F	A	A		A	E	A		C		
Approach Delay			35.2				69.6			25.0		
Approach LOS			D				E			C		
Queue Length 50th (m)		~68.0	6.8	0.0		0.7	~304.6	1.4		3.2		
Queue Length 95th (m)		#121.5	8.3	m0.0		m0.9	m#319.6	m1.7		12.0		
Internal Link Dist (m)			112.1				81.1			65.8		
Turn Bay Length (m)		65.0		15.0		30.0		15.0				
Base Capacity (vph)		290	2426	911		302	1701	707		325		
Starvation Cap Reductn		0	448	0		0	274	0		0		
Spillback Cap Reductn		84	697	0		0	25	0		3		
Storage Cap Reductn		0	0	0		0	0	0		0		
Reduced v/c Ratio		1.23	0.45	0.01		0.05	1.32	0.12		0.10		

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 3 (2%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2	92
Future Volume (vph)	2	92
Satd. Flow (prot)	1665	1483
Flt Permitted	0.707	
Satd. Flow (perm)	1211	1415
Satd. Flow (RTOR)		69
Lane Group Flow (vph)	81	92
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Detector Phase	8	8
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	37.0	37.0
Total Split (s)	37.0	37.0
Total Split (%)	28.5%	28.5%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	4.0	4.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	7.0	7.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	None
Act Effct Green (s)	22.3	22.3
Actuated g/C Ratio	0.17	0.17
v/c Ratio	0.39	0.31
Control Delay	50.6	16.7
Queue Delay	0.0	0.6
Total Delay	50.6	17.3
LOS	D	B
Approach Delay	32.9	
Approach LOS	C	
Queue Length 50th (m)	17.2	4.7
Queue Length 95th (m)	32.2	18.9
Internal Link Dist (m)	63.4	
Turn Bay Length (m)		
Base Capacity (vph)	279	379
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	115
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.29	0.35

Intersection Summary

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 56.1	Intersection LOS: E
Intersection Capacity Utilization 123.8%	ICU Level of Service H

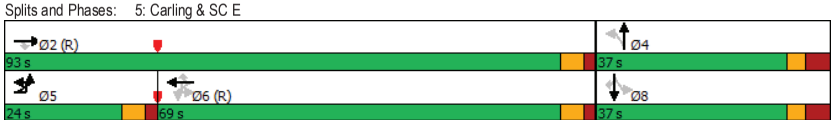
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Carling & SC E



Appendix M

Synchro Worksheets – Carling and Westgate SC (west) Pedestrian Sensitivity

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1408	885	14	12	23
Future Volume (vph)	0	1408	885	14	12	23
Satd. Flow (prot)	0	3316	3316	1483	1537	0
Flt Permitted					0.983	
Satd. Flow (perm)	0	3316	3316	1402	1501	0
Satd. Flow (RTOR)				7	23	
Lane Group Flow (vph)	0	1408	885	14	35	0
Turn Type		NA	NA	Perm	Perm	
Protected Phases		2	6			
Permitted Phases				6	4	
Detector Phase		2	6	6	4	
Switch Phase						
Minimum Initial (s)		10.0	10.0	10.0	10.0	
Minimum Split (s)		15.3	42.3	42.3	38.1	
Total Split (s)		81.0	81.0	81.0	39.0	
Total Split (%)		67.5%	67.5%	67.5%	32.5%	
Yellow Time (s)		3.7	3.7	3.7	3.0	
All-Red Time (s)		1.6	1.6	1.6	3.1	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.3	5.3	5.3	6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max	C-Max	None	
Act Effct Green (s)		85.3	85.3	85.3	27.6	
Actuated g/C Ratio		0.71	0.71	0.71	0.23	
v/c Ratio		0.60	0.38	0.01	0.10	
Control Delay		7.6	4.7	1.9	17.9	
Queue Delay		0.0	0.1	0.0	0.0	
Total Delay		7.6	4.8	1.9	17.9	
LOS		A	A	A	B	
Approach Delay		7.6	4.8		17.9	
Approach LOS		A	A		B	
Queue Length 50th (m)		53.4	28.7	0.1	2.1	
Queue Length 95th (m)		m62.5	6.3	m0.2	10.1	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)				15.0		
Base Capacity (vph)		2356	2356	998	428	
Starvation Cap Reductn		0	477	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.60	0.47	0.01	0.08	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 38 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 6.7	Intersection LOS: A
Intersection Capacity Utilization 65.0%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1073	2095	5	35	38
Future Volume (vph)	0	1073	2095	5	35	38
Satd. Flow (prot)	0	3316	3316	1483	1566	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	3316	3316	1382	1507	0
Satd. Flow (RTOR)				1	13	
Lane Group Flow (vph)	0	1073	2095	5	73	0
Turn Type		NA	NA	Perm	Perm	
Protected Phases		2	6			
Permitted Phases				6	4	
Detector Phase		2	6	6	4	
Switch Phase						
Minimum Initial (s)		10.0	10.0	10.0	10.0	
Minimum Split (s)		15.3	59.3	59.3	38.1	
Total Split (s)		91.0	91.0	91.0	39.0	
Total Split (%)		70.0%	70.0%	70.0%	30.0%	
Yellow Time (s)		3.7	3.7	3.7	3.0	
All-Red Time (s)		1.6	1.6	1.6	3.1	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.3	5.3	5.3	6.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode		C-Max	C-Max	C-Max	None	
Act Effct Green (s)		91.0	91.0	91.0	27.6	
Actuated g/C Ratio		0.70	0.70	0.70	0.21	
v/c Ratio		0.46	0.90	0.01	0.22	
Control Delay		10.3	18.4	6.6	33.9	
Queue Delay		0.0	2.0	0.0	0.0	
Total Delay		10.3	20.3	6.6	33.9	
LOS		B	C	A	C	
Approach Delay		10.3	20.3		33.9	
Approach LOS		B	C		C	
Queue Length 50th (m)		66.0	109.1	0.2	12.2	
Queue Length 95th (m)		80.3	m104.4	m0.2	25.1	
Internal Link Dist (m)		43.8	112.1		39.0	
Turn Bay Length (m)				15.0		
Base Capacity (vph)		2320	2320	967	391	
Starvation Cap Reductn		0	117	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.46	0.95	0.01	0.19	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 107 (82%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90
Intersection Signal Delay: 17.3 Intersection LOS: B
Intersection Capacity Utilization 84.2% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Carling & SC W